

# **FEATURE STEREO FW-CHASSIS 16:9**

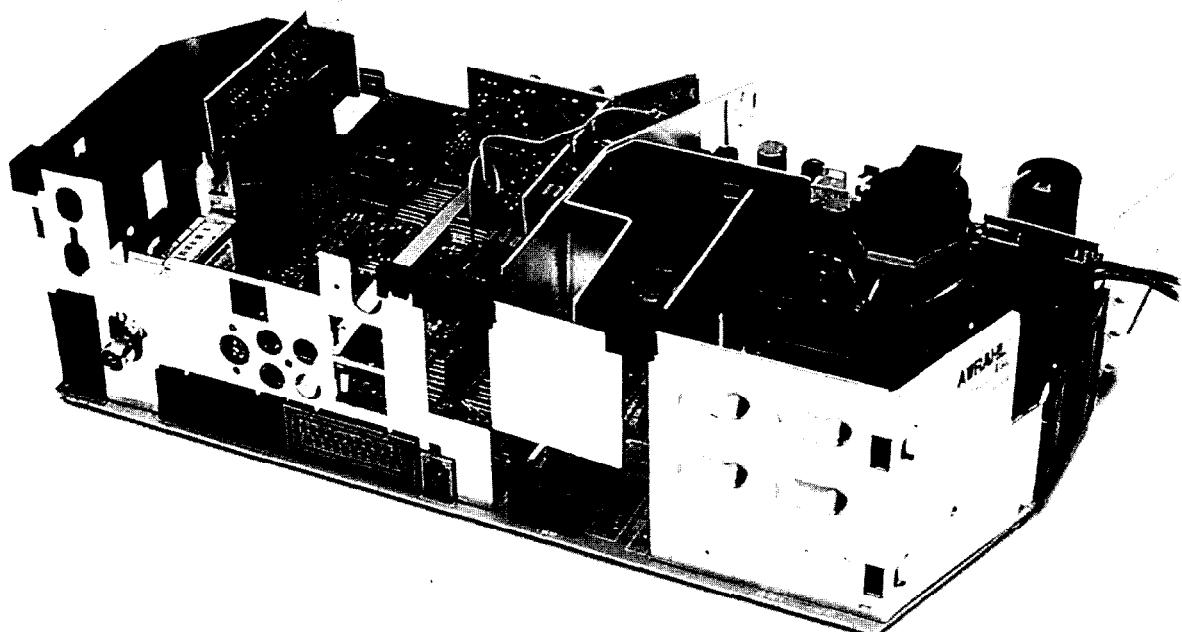
**T V**  
**1997**

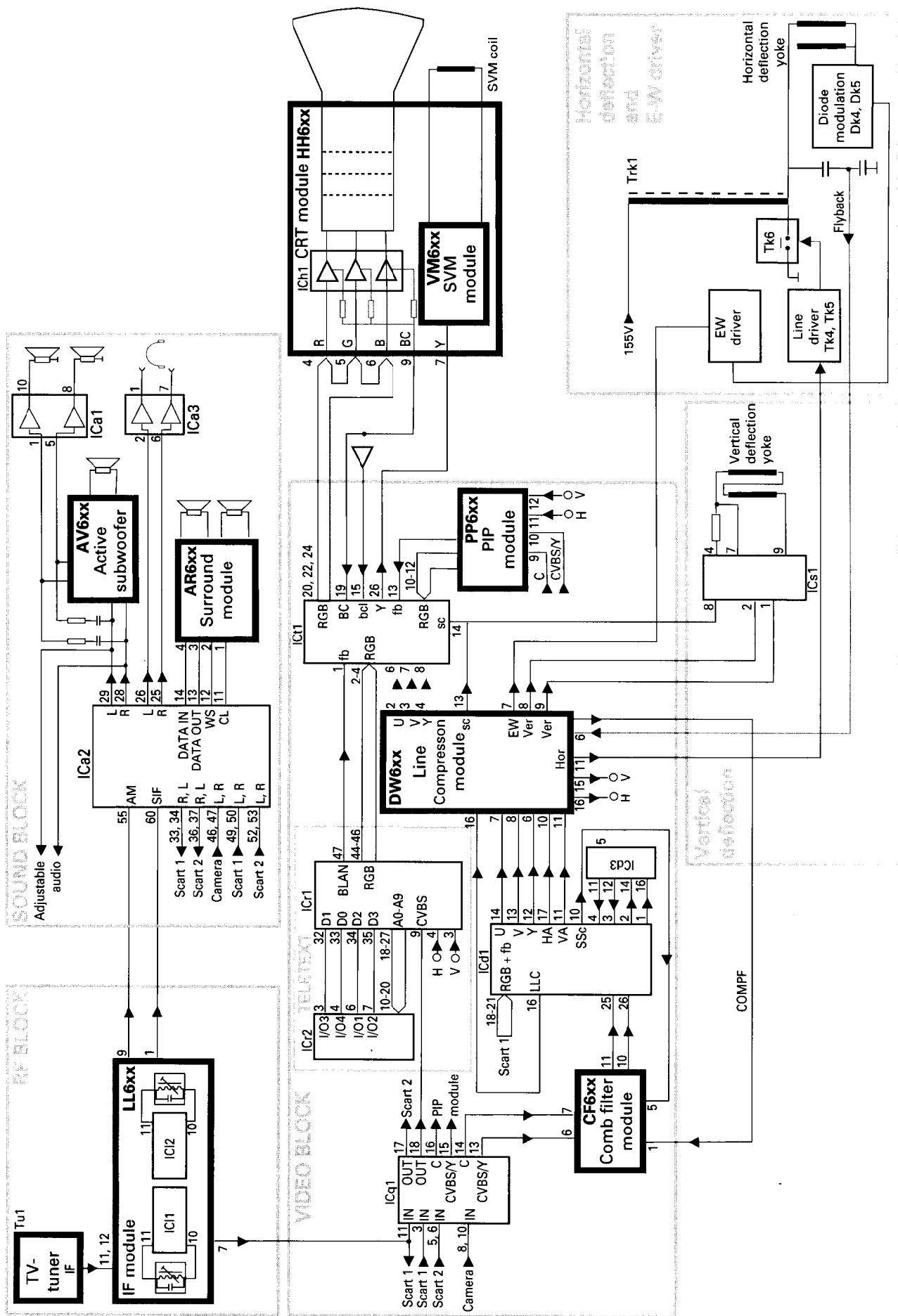
**GB** Service manual  
 **D** Serviceanleitung  
 **S** Serviceanvisning

**F** Manuel de service  
 **I** Manuale di servizio

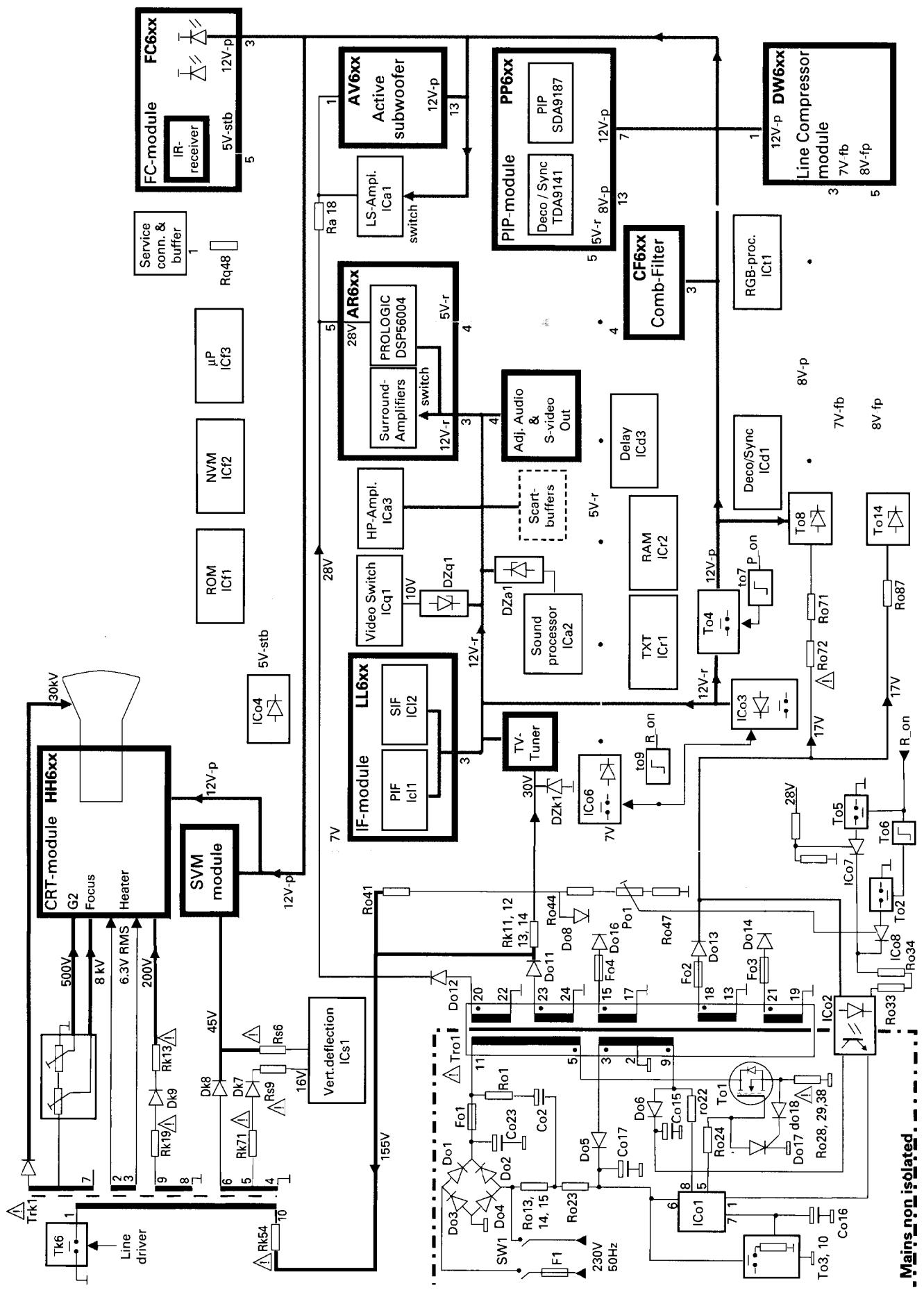
# **AKAI**

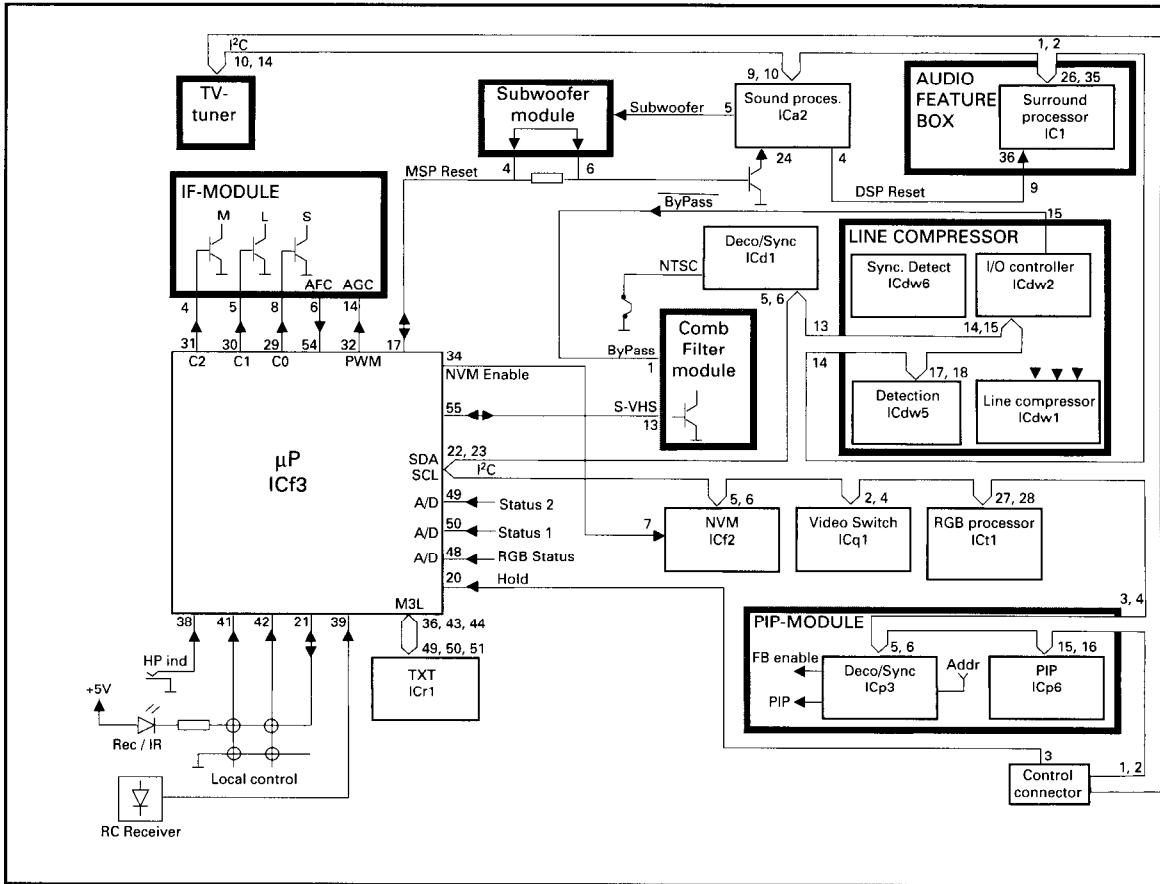
**CT-W3257 UNT-DPL  
CT-W2855 ENT**





## Power Supply





#### **Service mode selection:**

Switch on the receiver by pressing the mains switch and within 5 s. press the remote control buttons MENU, TV and "i" successively.

#### **Wahl des Service-Modus:**

Schalten Sie das Gerät mit dem Netzschalter ein und drücken Sie innerhalb 5 Sekunden nacheinander die Fernbedienungstasten MENU, TV und "i".

#### **Val av service-läge:**

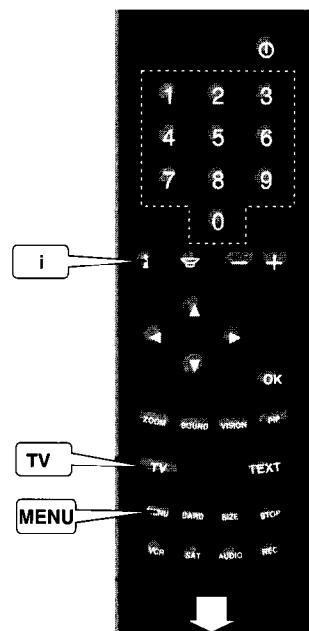
Slå på mottagaren med huvudströmbrytaren och inom 5 s. tryck på fjärrkontrollens MENU, TV och "i" knappar succesivt.

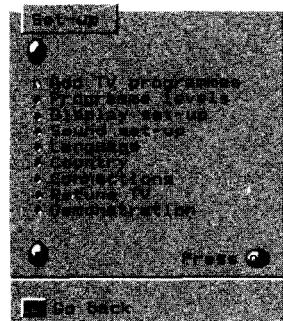
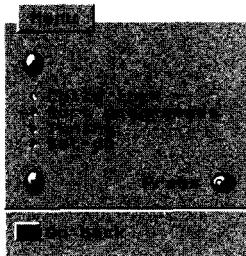
#### **Sélection du mode service:**

Mettre le récepteur en marche à l'aide de l'interrupteur principal et dans les 5 secondes appuyez successivement sur les touches MENU, TV et "i" de la télécommande.

#### **Selezione del modo servizio:**

Accendere il ricevitore tramite l'interruttore generale e premere in sequenza i tasti del telecomando MENU, TV e "i" entro 5 secondi.





## Language selection

1. Press the MENU button (under the lid).
2. Select "Set-up" with the cursor buttons (up-/downwards) and press the OK button.
3. Select "Language" and press the OK button.
4. Select the desired language and press the OK button.
5. Press the TV button to exit.

## Manual tuning

1. Select programme number you want to tune.
2. Press the MENU button.
3. Select "Manual tuning" and press the OK button.
4. Press the red button (SEARCH).
5. Press the OK button to store.
6. Press the TV button to exit.

## APSi (Automatic Programming System)

1. Press the MENU button.
2. Select "Set-up" and press the OK button.
3. Select "Retune TV" and press the OK button.
4. To retune the channels, press the OK button.
5. Press the TV button to exit.

## NVRAM (ICf2)

### Initialization of NVRAM

The NVRAM must be initialized and configured, if the NVRAM is replaced or it has totally lost its data. The next procedure is assuming that the tv does not start at all due to wrong data in NVRAM.

1. Set the receiver to the service mode by switching on the receiver with the mains switch and within 5 s. pressing the buttons MENU, TV and "i" successively.  
Note! The receiver is in the service mode although it looks like the receiver is in stand-by mode!
2. Press the RED-button to pre-configure the set. Green led will flash once to indicate this.
- 3a At the same time the controller will check NVRAM and initializes it automatically if it was "empty". Initializing will take about 15s. When it is complet, the green led will light up. Continue to the step 4.
- 3b The automatic initializing did not happen, if the green led does not light up steady. In some cases the led might also light up immediately after configuration without any initializing, depending on NVRAM contents. In this case it might be enough to store the new configuration by pressing "OK". Continue to the step 4.
- 3c If the automatic initializing did not happen, you can start it manually by entering the key code: BLUE (wait approx. 2s), 2, 5, 4 (wait approx. 2s) and OK.  
Initializing will take about 15 s.
4. Switch off the receiver by pressing the mains switch.
5. Set the receiver to the service mode by switching on the receiver with the main switch and within 5 s. pressing the buttons MENU, TV and "i" successively. If the receiver remains in stand-by mode, press the TV button twice and then press the "i" button.
6. Configure the receiver by pressing the RED button. The configuration menu will show up.
7. Press the OK button.
8. Press the TV-button and tune in one or more tv channels.
9. Return to service mode by pressing the "i" button.
10. After that make all of the service adjustments (see section "Service adjustments via IIC bus").
11. Switch off the receiver by pressing the mains switch.

# Service adjustments

## Service mode selection

- Set the receiver to the service mode by switching on the set with the mains switch and within 5 seconds pressing the remote control buttons MENU, TV and "i" successively.

**Note!** If the receiver remains in stand by mode after selecting the service mode, switch on the receiver by pressing the TV button twice and select the service mode by pressing the "i" button.



In the service mode an adjustment menu (including the adjustment number and name, initializing (left) and adjustment (right) values are shown on the screen.

- Return from the service mode by switching off the receiver with the mains switch.

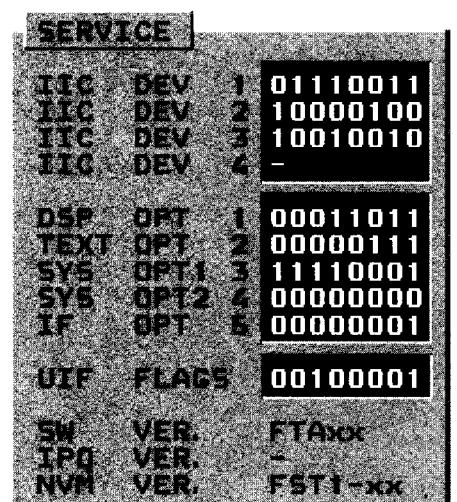
## Configuration and fault diagnosis

The set must be configured after adding or removing some options. By pressing the red button in the service mode, the processor checks all possible addresses of bus-driven circuits and shows the settings on the screen.

This feature can also be used in fault finding; if an option bit is not "1" when it should be or if it is not possible to change it to "1" by using the number buttons, the IC is either not present or it is faulty.

## Changing the option bytes

- When in service mode, select the configuration mode by pressing the red button.



## Description

SW VER. = µP software version.

NVM VER. = NVM software version.

- Select IIC Device byte 1 - 4 or Option byte 1 - 5 with the cursor button (up-/downwards). Selected byte is shown highlighted.
- Set the bits with the number buttons (0 ... 7).
- Store the settings by pressing the OK button.
- Return to the service mode by pressing the red button again.

## Option byte description

Bit	Description	Setting	'1'	'0'
		7 6 5 4 3 2 1 0	T I C   D E V	1 0 1 1 0 0 1 1
0	TV tuner		Yes	No
1	Decoder TDA9141		Yes	No
4	Deflection controller TDA9151		Yes	No
5	RGB processor TDA4780		Yes	No
6	Video switch TDA6417		Yes	No
7	PIP controller SDA9188		Yes	No
			T I C   D E V	2 1 0 0 0 0 1 0 0
0	PIP tuner		Yes	No
2	Megatext SDA5273		Yes	No
5	MSP3410 version D-3B		Yes	No
7	MSP3400 / 3410		Yes	No
			T I C   D E V	3 1 0 0 1 0 0 1 0
0	DSP (AR600)		Yes	No
1	Subwoofer		Yes	No
4	Comb filter (SVHS line low)		Yes	No
6	DSP (AR602)		Yes	No
7	I/O PCF8574 (DW6xx module)		Yes	No
			D S P   O P T	1 0 0 0 1 1 0 1 1
0-3	Loudspeaker configuration (user mode)		Yes	No
4	Bass splitting (Manual)		Yes	No
6	Pre-equalization for DSP (manual)		Yes	No
			T E X T   O P T	2 0 0 0 0 0 1 1 1
0	TXT with external RAM		Yes	No
1	TOP text enabled (manual)		Yes	No
2	Flof text enabled (manual)		Yes	No
4	TXT sync mode (manual)		Yes	No
5	Subpage rolling (manual)		Yes	No
			S Y S   O P T	3 1 1 1 1 0 0 0 1
0	Camera connector installed (manual)		Yes	No
3	RGB enabled only in E1		Yes	No
4	NTSC 3.58 MHz		Yes	No
5	ACI enabled (manual)		Yes	No
6	NICAM enabled (manual)		Yes	No
7	Loudness enabled (manual)		Yes	No
			S Y S   O P T	2 4 0 0 0 0 0 0 0 0
0	Start TV with mains		No	Yes
2	S-VHS disabled in A/V connector		Yes	No
6	Start TV to demo mode		Yes	No
7	Hotel TV functions enabled		Yes	No
			I F   O P T	5 0 0 0 0 0 0 0 1
0	B/G system		Yes	No
1	I system		Yes	No
2	D/K system		Yes	No
3	L/L' system		Yes	No
7	Only UHF tuner		Yes	No
			U I F   F L A G S	0 0 1 0 0 0 0 1
3-4	OEM option (manual)		Yes	No
5	Volume bar enabled		Yes	No
6	On-screen programme number enabled		Yes	No
7	Parental lock on		Yes	No

## Remote control buttons in service mode

When the receiver is in service mode you can select the normal TV mode by pressing the TV button and return to the service mode by pressing the "i" button.

Number and cursor buttons are used for service adjustments. The yellow button hides temporarily the service menu. The OK button stores the settings.

**Note!** Before other adjustments U1 voltage must be adjusted.

## Adjustment for different picture format

First make all adjustments with normal 16:9 picture format. The TV uses these adjustment values for all picture formats if no other adjustments were made. In each adjustment it is mentioned if the adjustment must be done separately for different picture format, repeat only those adjustments.

## Making the service adjustment

1. Give a two numbered code which determines the adjustment (e.g. 05 = horizontal phase, see the following tables) with the number buttons.

**Note!** The adjustments can also be selected with the cursor button (up-/downwards).



27 | 26

2. Adjust with the cursor button (left/right).



27 | 27

3. Store the new value by pressing the OK button.

### Note!

- To avoid incomplete adjustments store each adjustment in the memory immediately after adjusting.
- If the adjustment has to be made separately for different picture format, select the normal user mode by pressing the TV button and change the picture format with the ZOOM button. Return to service mode by pressing the the "i" button.

## Vertical picture adjustments

Adjustment	Code	OSD name	Init. value	Note!
Vertical amplitude	00	V-ampl.	43	Adjust the picture height to correct ratio.
Vertical off-centre shift	01	V-shift	3	
Vertical start scan	02	V-start	6	
Vertical S-correction	03	S-corr.	27	Separate adjustments for 16:9 and 4:3 Zoom1 format!
Vertical S-correction 4:3 Zoom1				
Vertical slope 4:3 Zoom (coarse)	12	Zoom-H	71	Separate adjustments for 4:3 Zoom and 4:3 Zoom1 format! Make the adjustment also for 4:3 Zoom picture using 60Hz NTSC signal!
Vertical slope 4:3 Zoom1				
Vertical slope 4:3 Zoom, 60Hz NTSC				
Vertical slope 4:3 Zoom (fine)	13	Zoom-L	0	Separate adjustments for 4:3 Zoom and 4:3 Zoom1 format!
Vertical slope 4:3 Zoom1				
Center value, 4:3 Zoom shift (V-wait)	14	Shift	28	Separate adjustments for 4:3 Zoom and 4:3 Zoom1 format! Make the adjustment also for 4:3 Zoom picture using 60Hz NTSC signal!
Center value, 4:3 Zoom1 shift				
Center value, 4:3 Zoom shift, 60Hz NTSC				

## Horizontal picture adjustments

Adjustment	Code	OSD name	Init. value	Note!
EW width	04	Width	35	Set brightness and contrast to 10%.
Horizontal phase	05	H-shift	27	Separate adjustments for normal 4:3, 4:3 Zoom and 16:9 picture format!
Horizontal phase 4:3				
Horizontal phase 4:3 Zoom				In addition make same adjustments by using RGB signal!
Horizontal phase RGB				
Horizontal phase RGB Zoom				
EW parabola	06	Parab.	13	
EW corner	07	Corner	0	
EW trapezium	08	Trapez	2	
EHT compensation	09	EHT	18	Set brightness and contrast to 90% and compensate the change in picture size.

## Other adjustments

Adjustment	Code	OSD name	Init. value	Note!
Red gain	17	R gain	41	
Green gain	18	G gain	32	
Blue gain	19	B gain	32	This procedure is necessary e.g. when the picture tube, CRT-module etc. has been replaced! Apply a test picture and adjust the R, G and B references. Then adjust the R, G and B gains.
Red reference	20	R ref.	52	
Green reference	21	G ref.	21	
Blue reference	22	B ref.	16	
Clamp shift	11	Clamp	0	Normally no need to adjust.
Peak white limit	23	PWL	63	Normally no need to adjust.
Gamma correction	24	GAMMA	32	Normally no need to adjust.
Tuner AGC	25	TV AGC	170	Apply a 1 mV (60 dB $\mu$ V) test signal. Adjust the picture just without noise.

## O Power supply block

### Supply voltage (U1) and protection circuit

- Set brightness and contrast to normal level. Connect a universal voltmeter to the cathode of Do11.
- Adjust with Po1 the DC voltage (U1) for +155 V ( $\pm 1$  V)
- Check the over-current protection after making any service operations in the primary circuit of the power supply. Set the receiver to the stand-by mode. Short circuit the cathode of Do 13 to the ground and keep the short circuit connected. When the over-current protection works correctly, the power supply stops. Remove the short circuit and switch on the receiver by pressing the mains button.

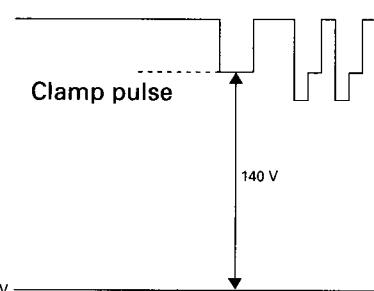
## K Horizontal deflection block

### Focusing

Set brightness to normal level and contrast to high level. Use cross-hatch pattern and adjust the picture for optimum resolution.

### (Screen grid voltage) Ug2 voltage

- Set contrast to minimum, brightness and colour saturation to normal level.
- At the end of the vertical blanking, there is a black current measurement pulse (clamp pulse) at pins 9, 12 and 15 of ICh1. Use an oscilloscope and find the output stage with the highest cut-off (ie. the highest voltage during the black current measurement pulse).
- Adjust the voltage of the clamp pulse to +140 V with Ug2.



Note! Adjust the voltage with a clamp pulse.

## LL Picture and sound IF-module

### Video demodulator

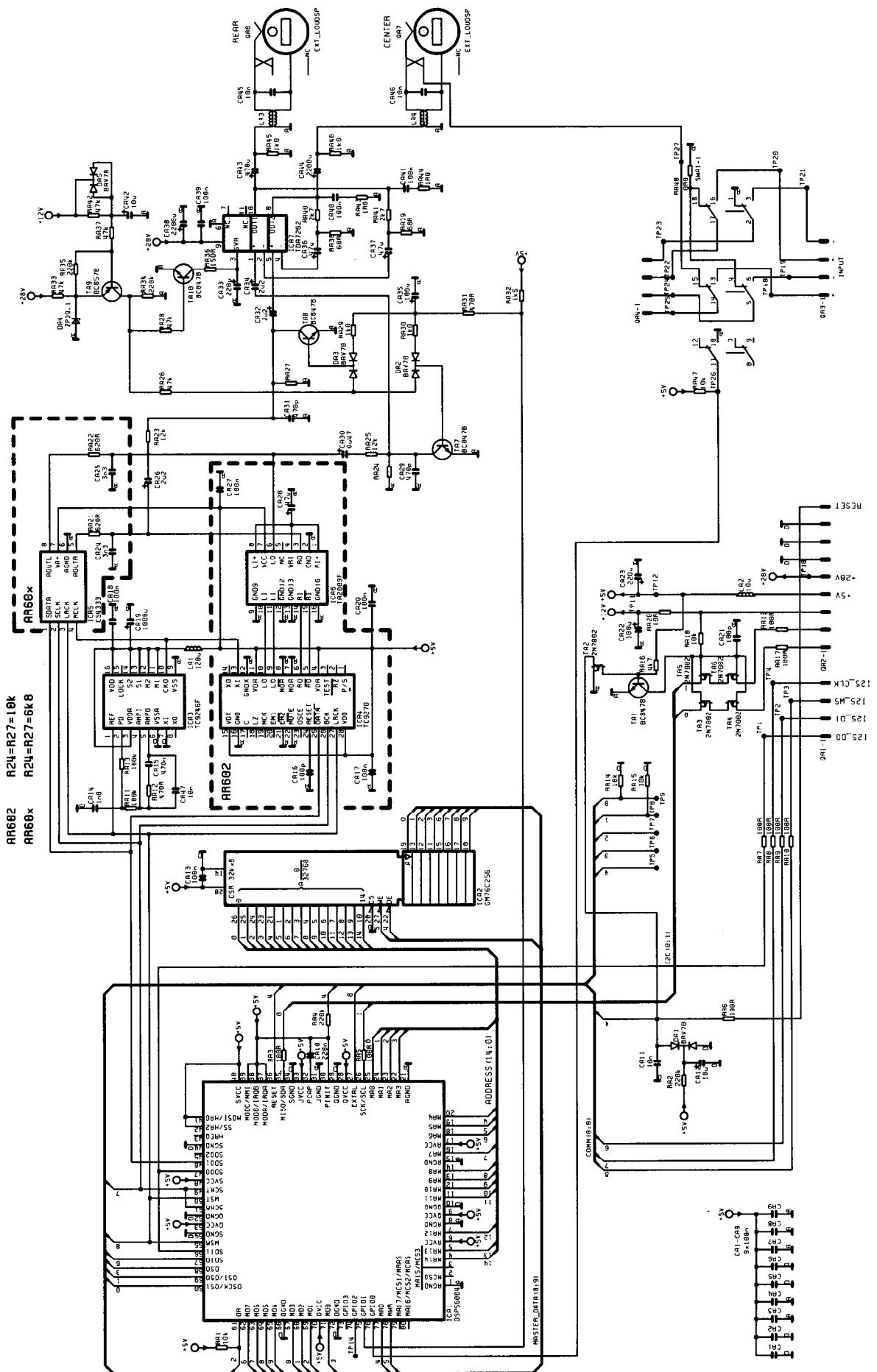
- Apply a test signal (1 mV = 60 dB $\mu$ V).
- Connect a universal voltmeter to the module connector X1 pin 6.
- Adjust with LL6 the DC voltage to the point where it changes from 0 to 5 V.

### Sound demodulator

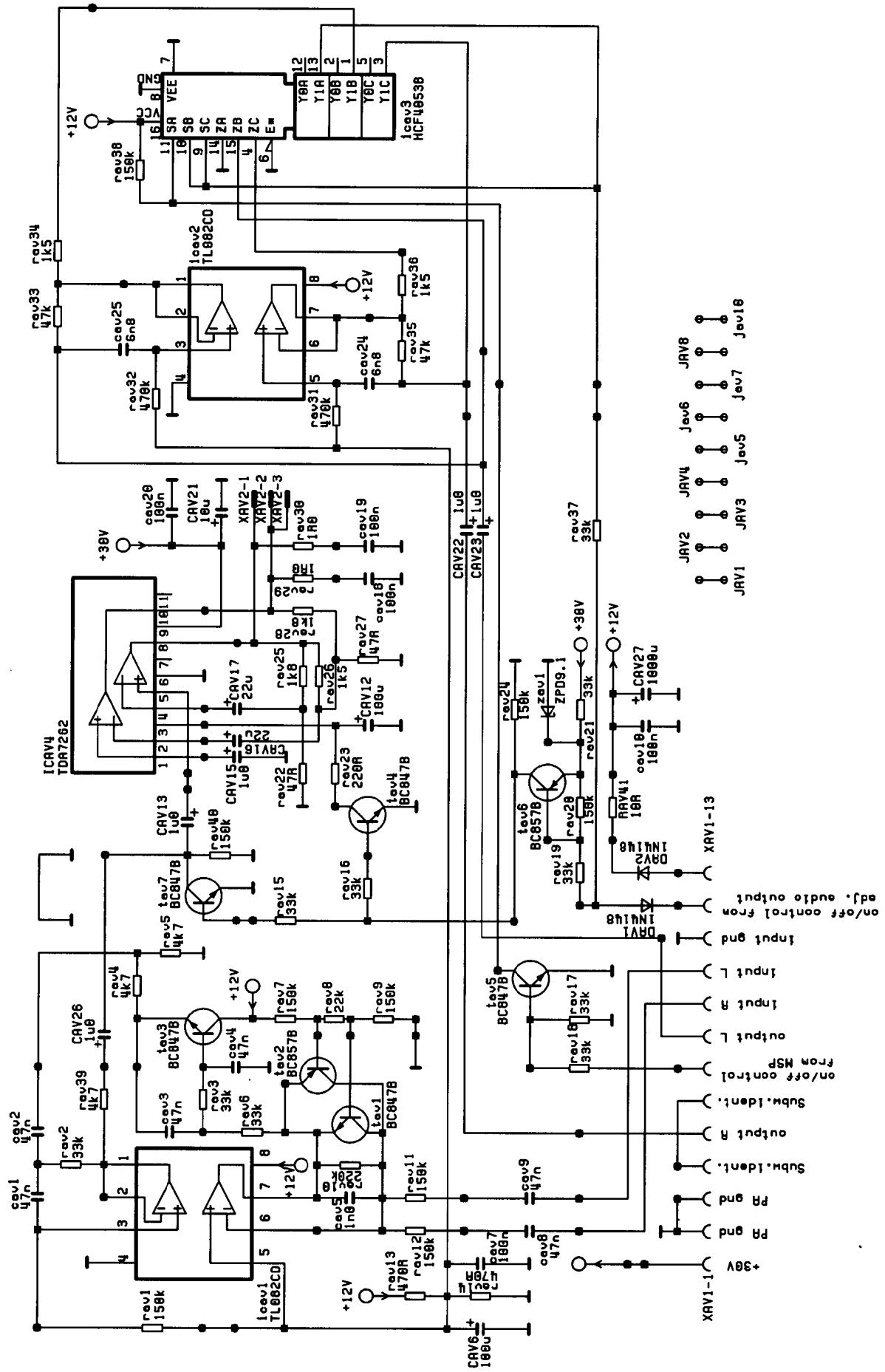
- Apply a CCIR B/G standard (FM modulated sound) test signal.
- Connect a universal voltmeter to ICL1 pin 13.
- Adjust with LL1 the DC voltage for +3.7 V.

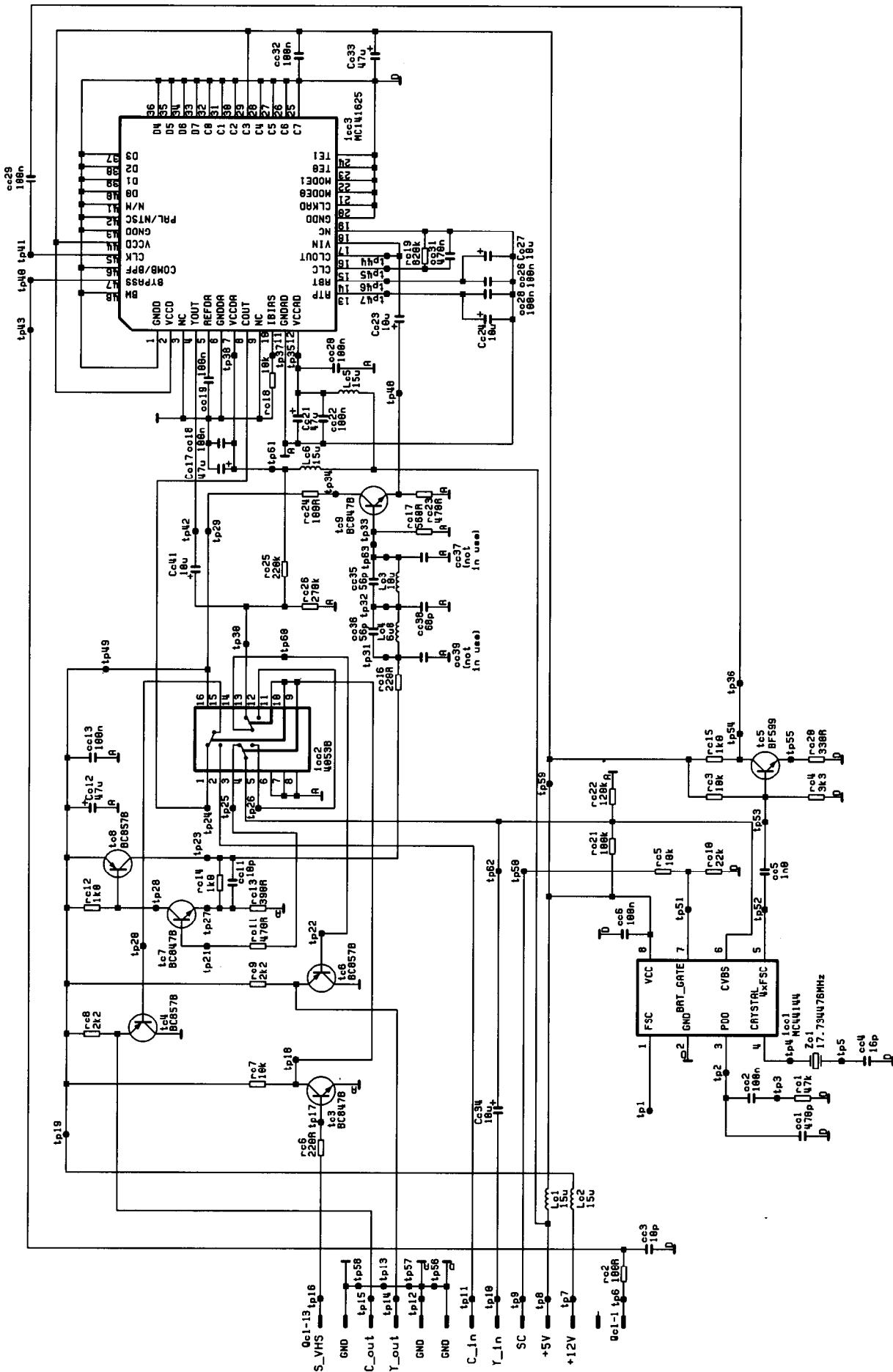
- ① Components common AW
- ② Components missing Bautelle AW
- ③ Components variables AW
- ④ Components che differiscono AW
- ⑤ Components different AW

<b>Picture</b>		
<b>Tube</b>	<b>VI 28 EDX 013x001</b>	<b>Vi32 EDL 013x101</b>
<b>Mainboard</b>	<b>AW**H</b>	<b>AW***F*</b>
<b>PW-block</b>	<b>PW-673</b>	<b>PW-671</b>
<b>PCB</b>		
<b>F05</b>	<b>4R7</b>	<b>4R7(Rk16)</b>
<b>TRK1</b>	<b>Eldor</b>	<b>Eldor</b>
<b>TRO1</b>	<b>FM3602B</b>	<b>FM3602B</b>
<b>dZk4</b>	<b>BZX849V1</b>	<b>BZX849V1</b>
<b>Dzk5</b>	<b>Ykl 12,5</b>	<b>Ykl 12,2</b>
<b>Lk52</b>	<b>5920903700</b>	<b>5920903700</b>
<b>J 44</b>	<b>Ykl 10,0</b>	<b>Ykl 10,0</b>
<b>J 1,51</b>	<b>kurist 3,5x9</b>	<b>Ykl 7,5</b>
<b>J 84</b>	<b>Ykl 10,0</b>	<b>Ykl 10,0</b>
<b>J 108</b>	<b>Ykl 7,5</b>	<b>Ykl 7,5</b>
<b>J 350</b>	<b>Ykl 10,0</b>	<b>Ykl 10,0</b>
<b>J 147</b>	<b>KK670</b>	<b>KK670</b>
<b>foliop.</b>	<b>Ykl 20,0</b>	
<b>fok.bl.</b>	<b>temic 667</b>	<b>-</b>
<b>F0670</b>	<b>-</b>	<b>X</b>
<b>HH6**</b>	<b>HH654</b>	<b>HH653</b>
<b>U 3</b>	<b>14V</b>	<b>14V</b>
<b>U 1</b>	<b>155V</b>	<b>155V</b>

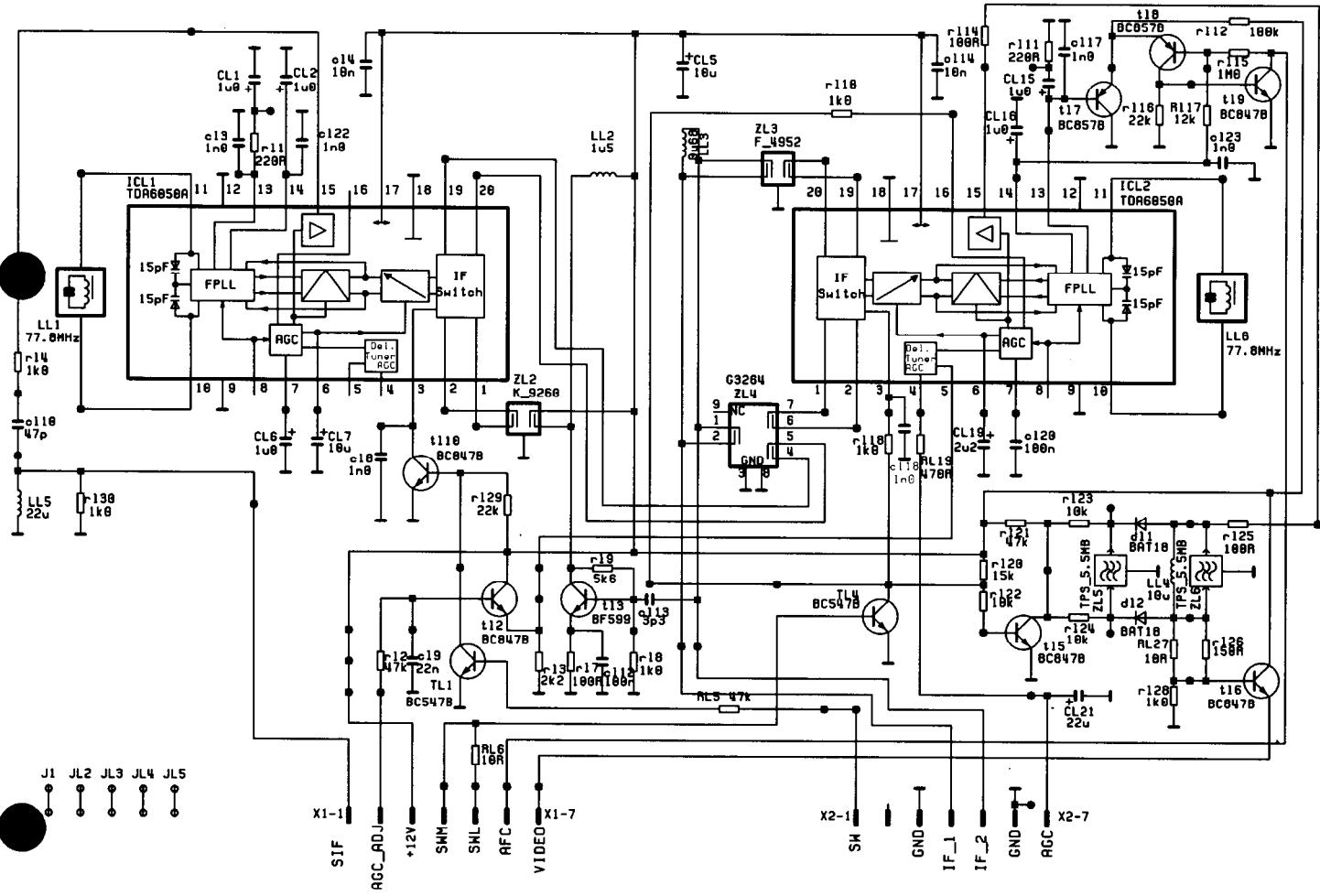
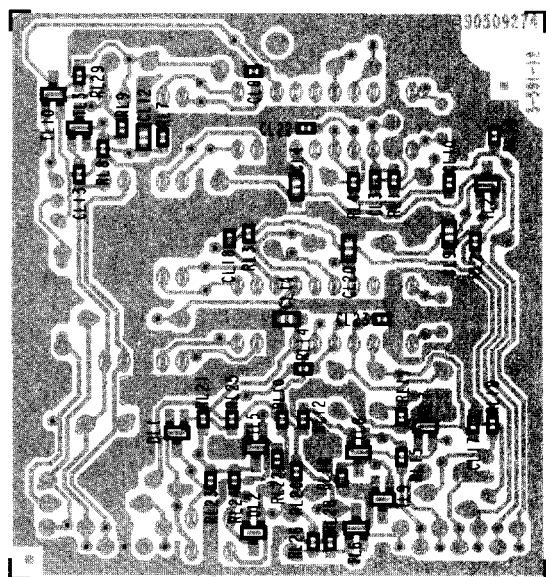
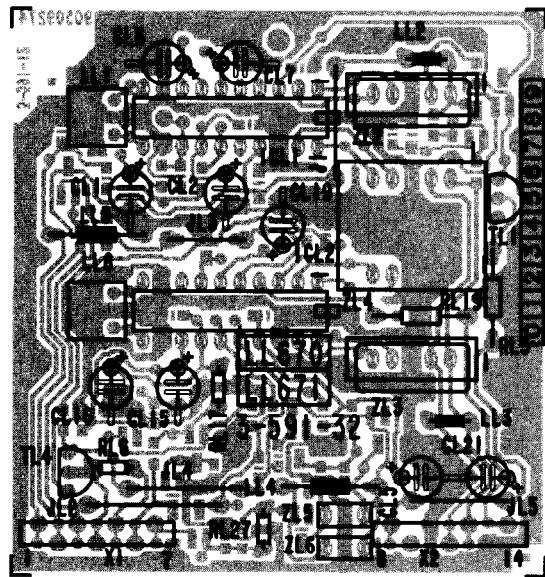


www.english-test.net

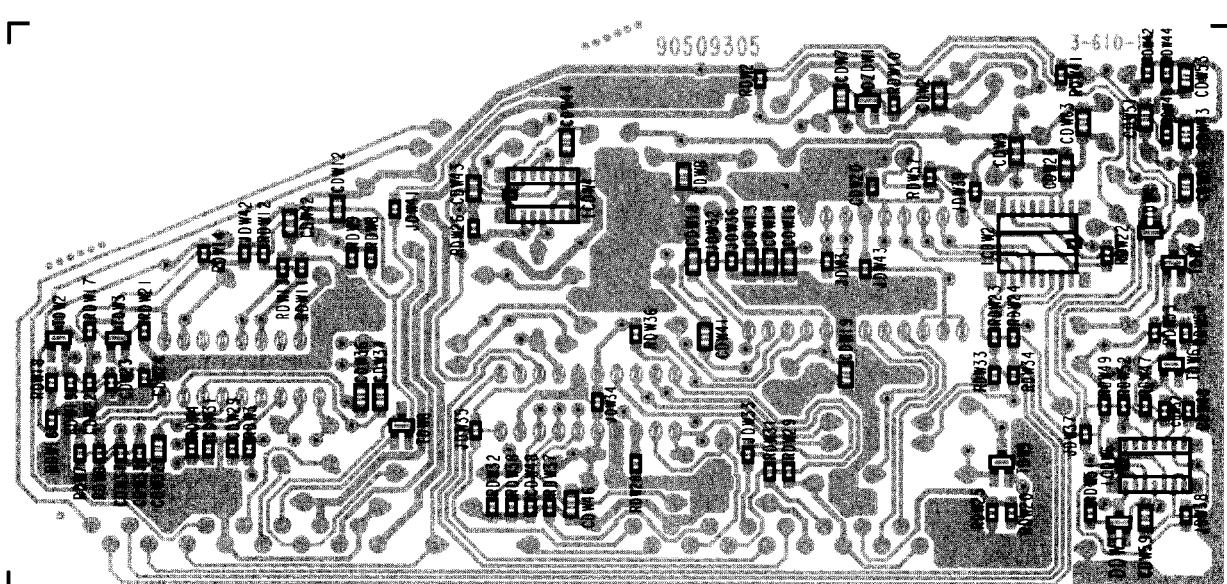
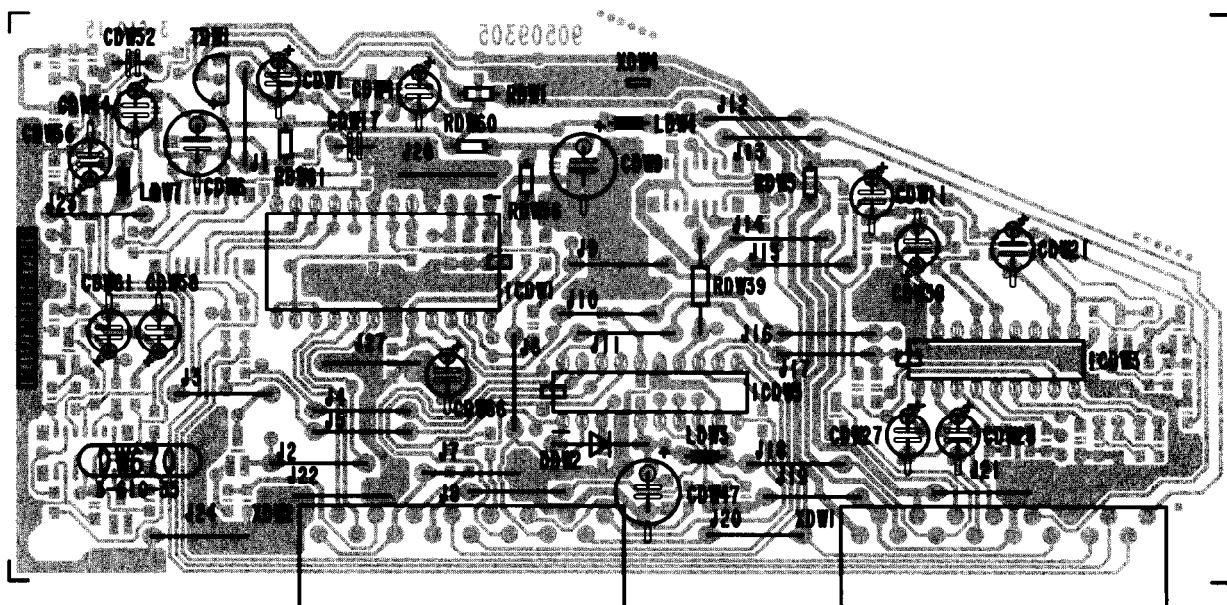




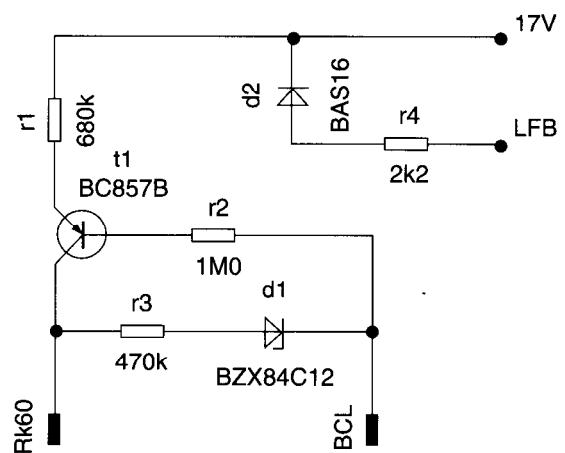
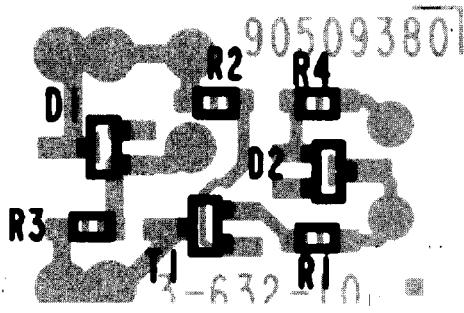
# LL670/671 IF-module

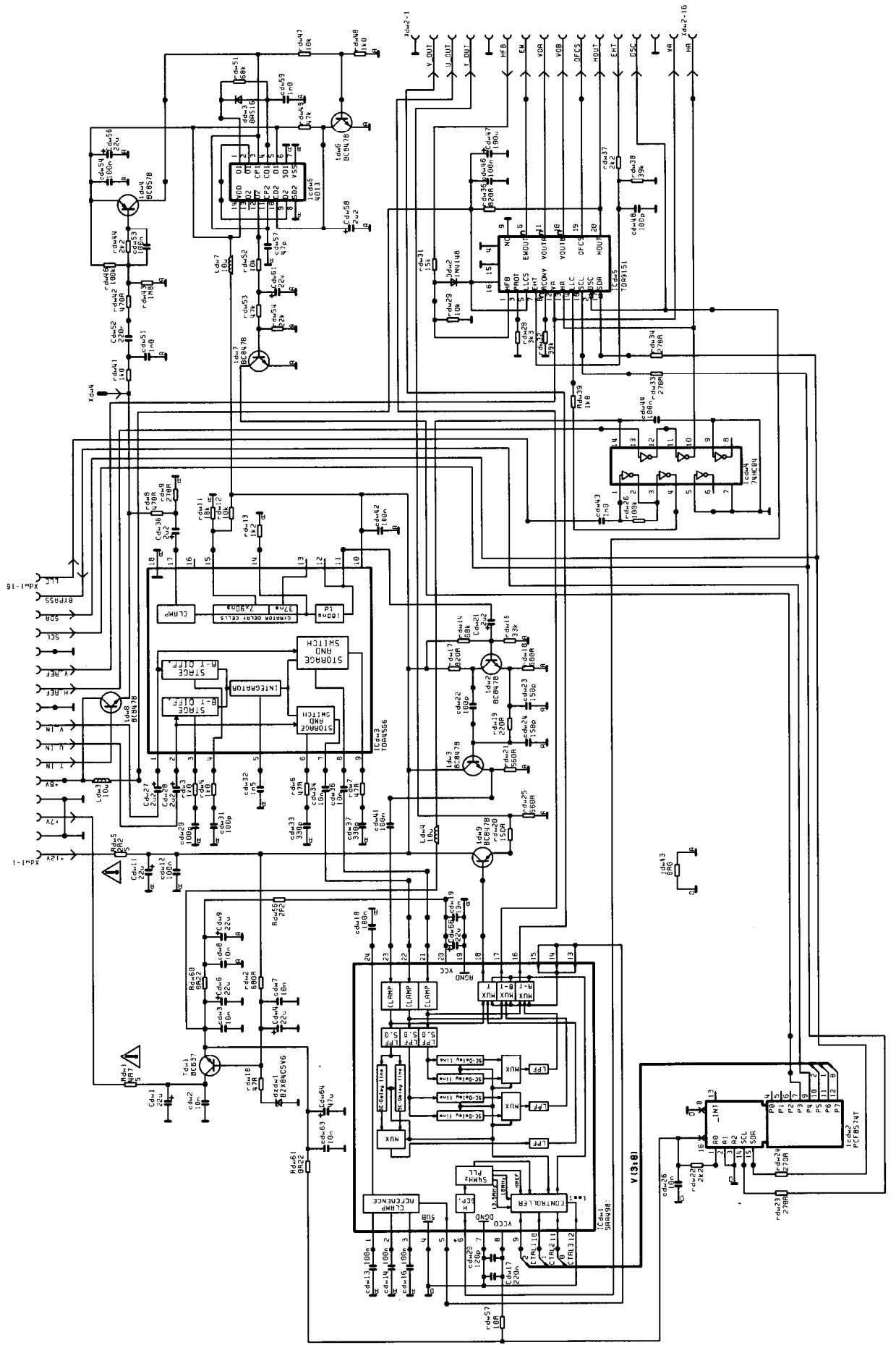


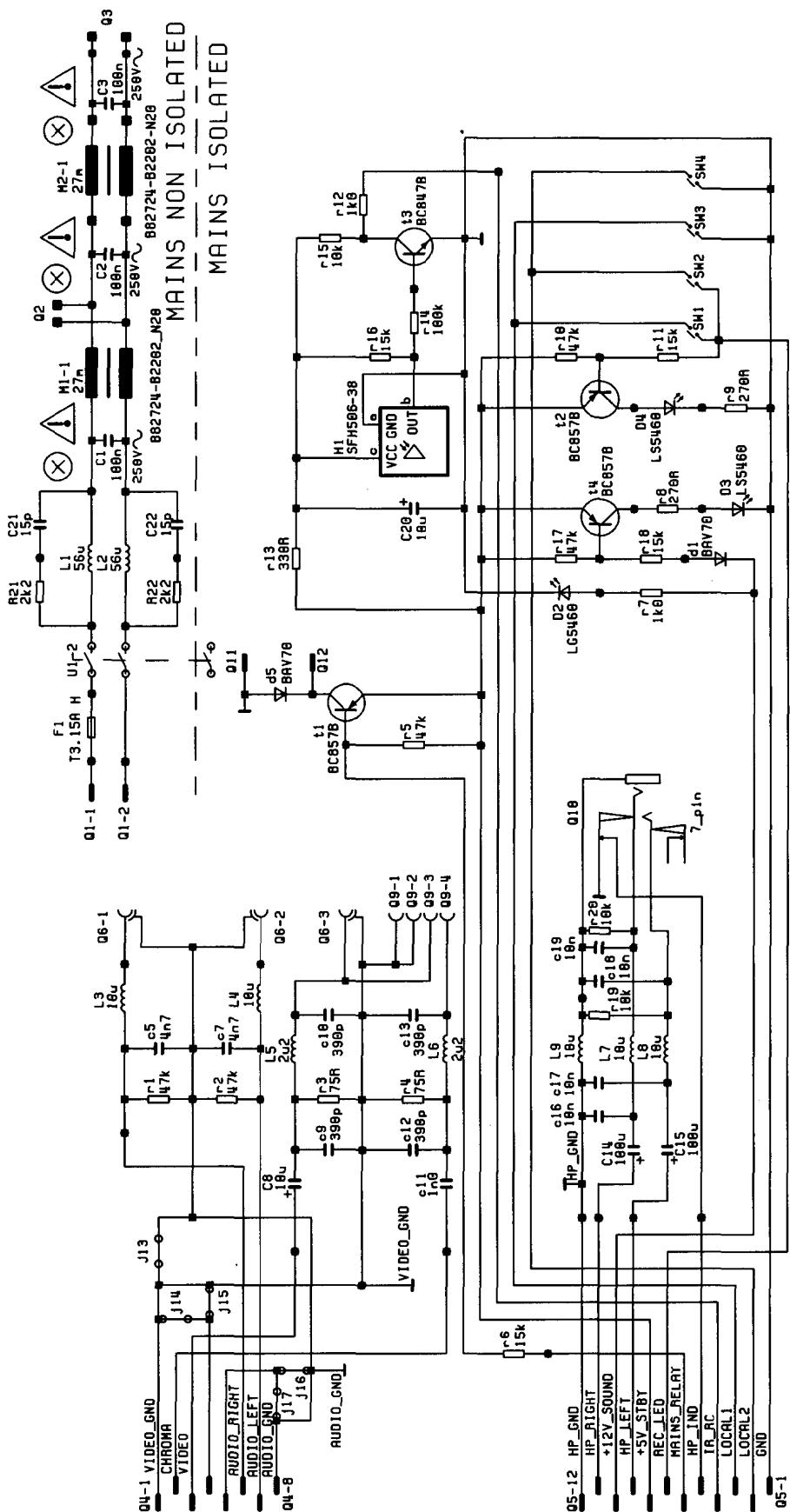
DW6400 Line compressor module



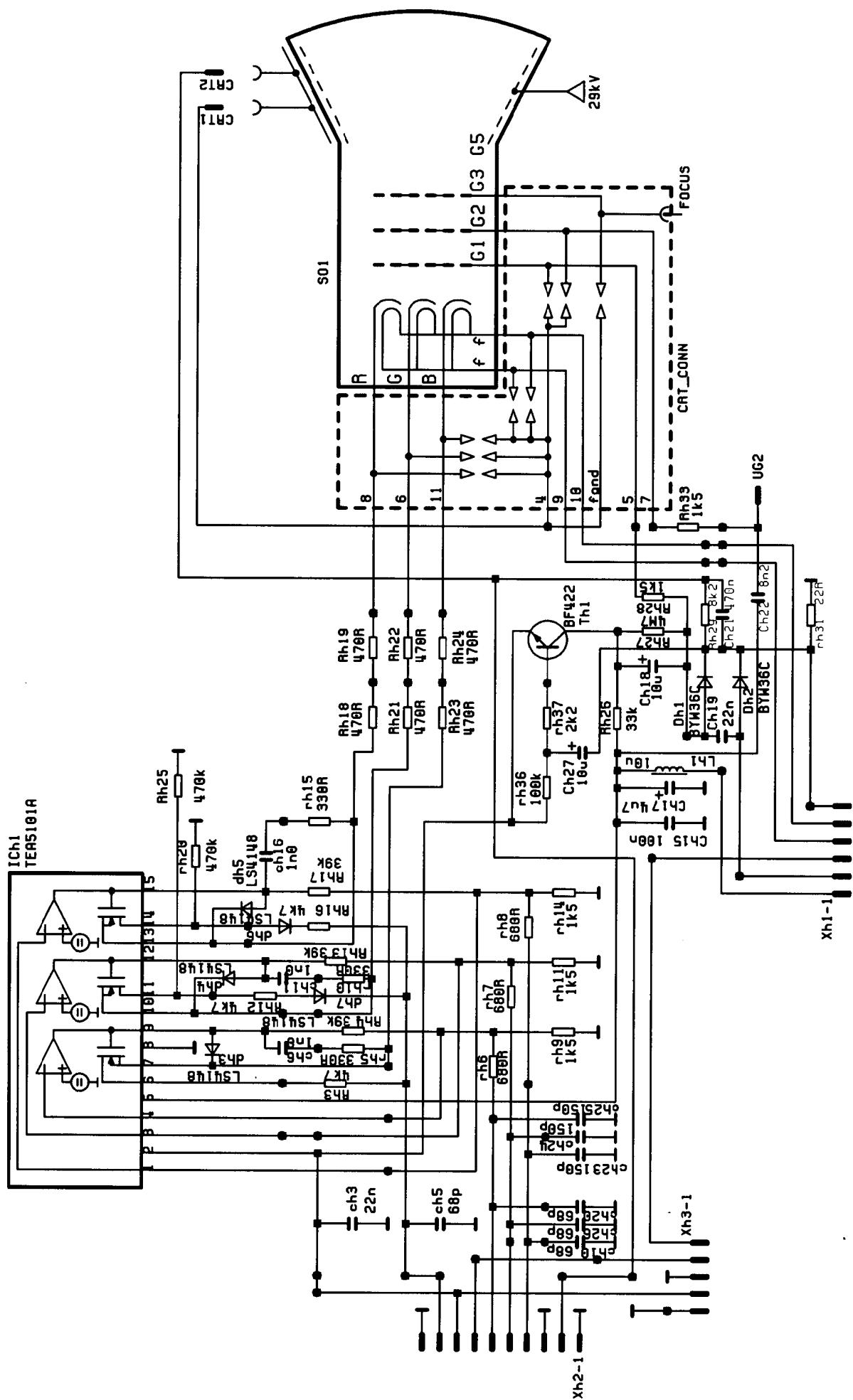
#### **KK670 Width compensation module**

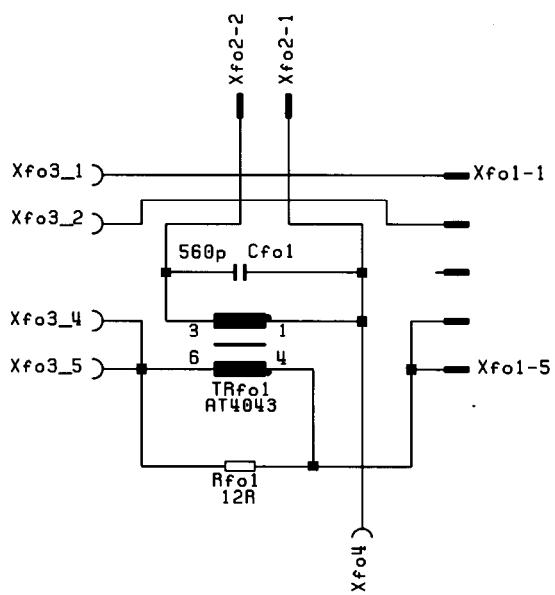
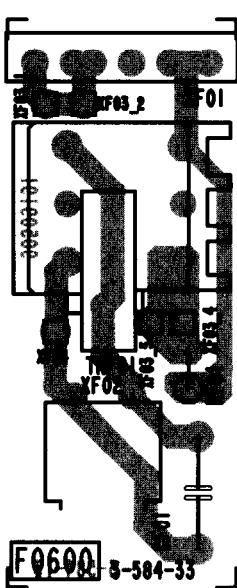
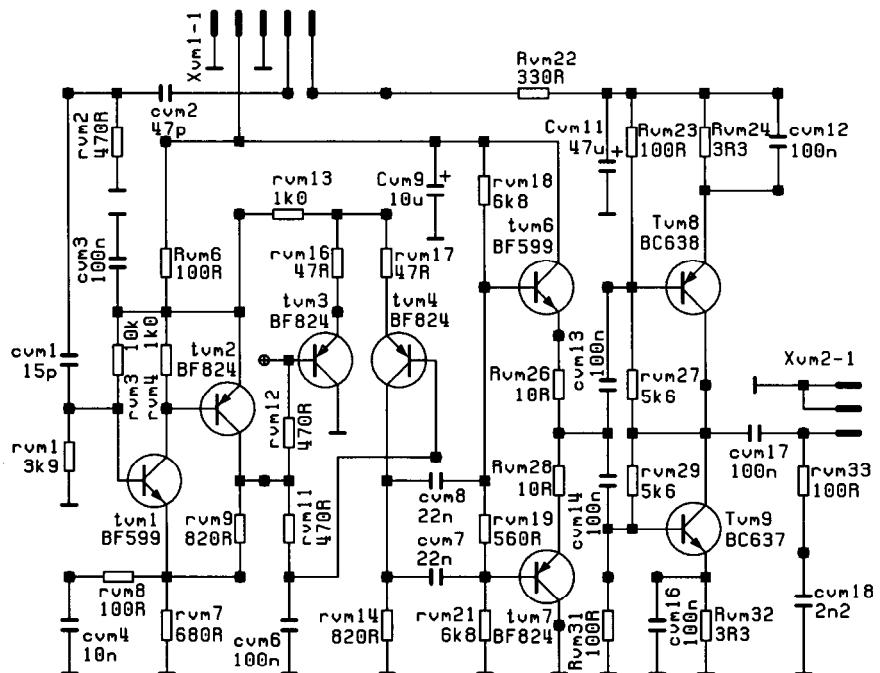
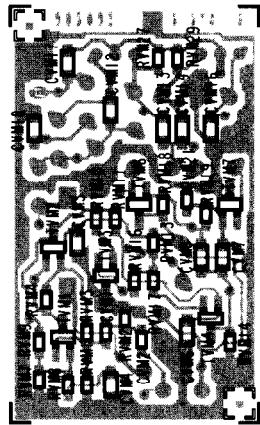
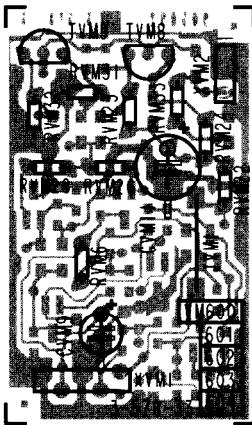


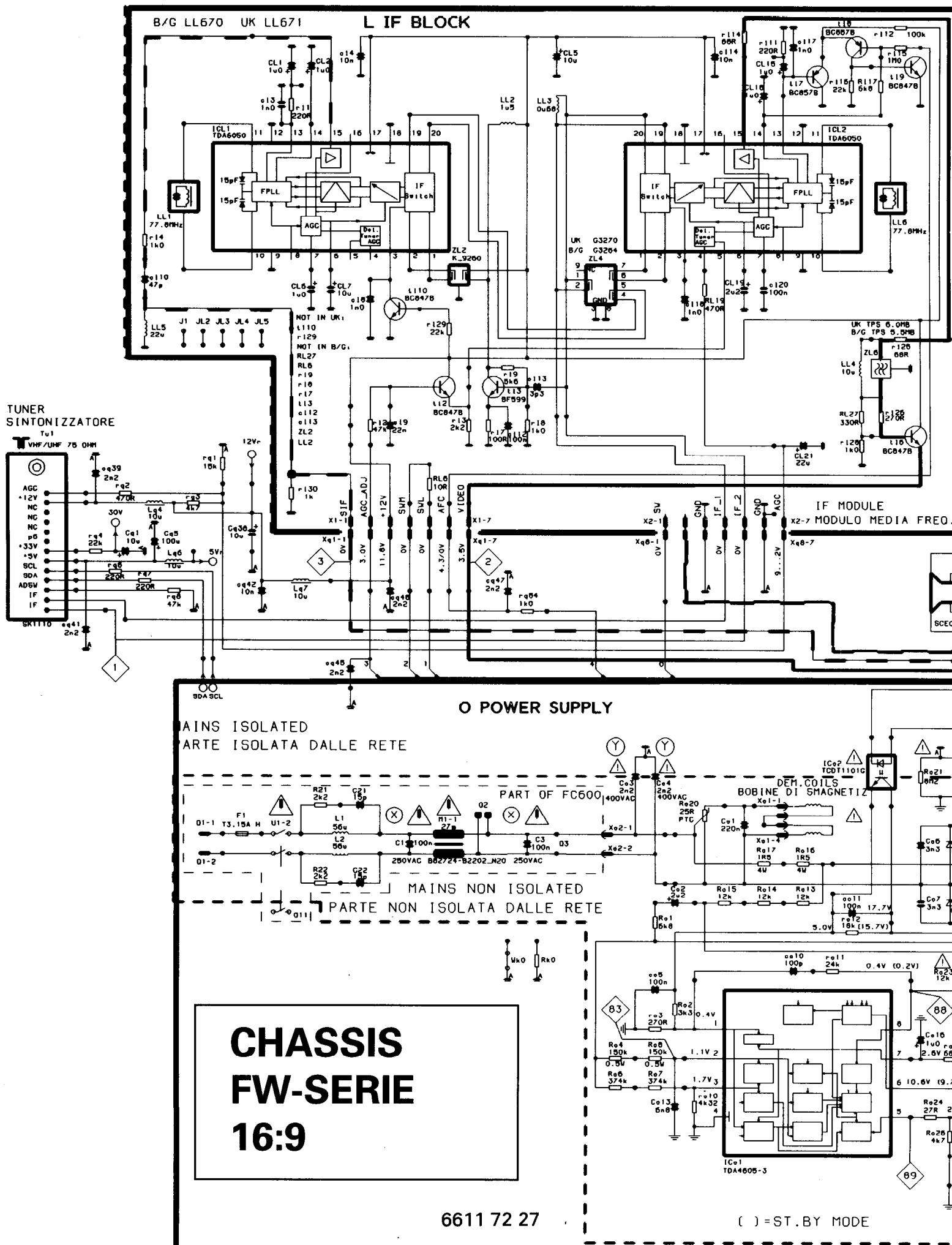


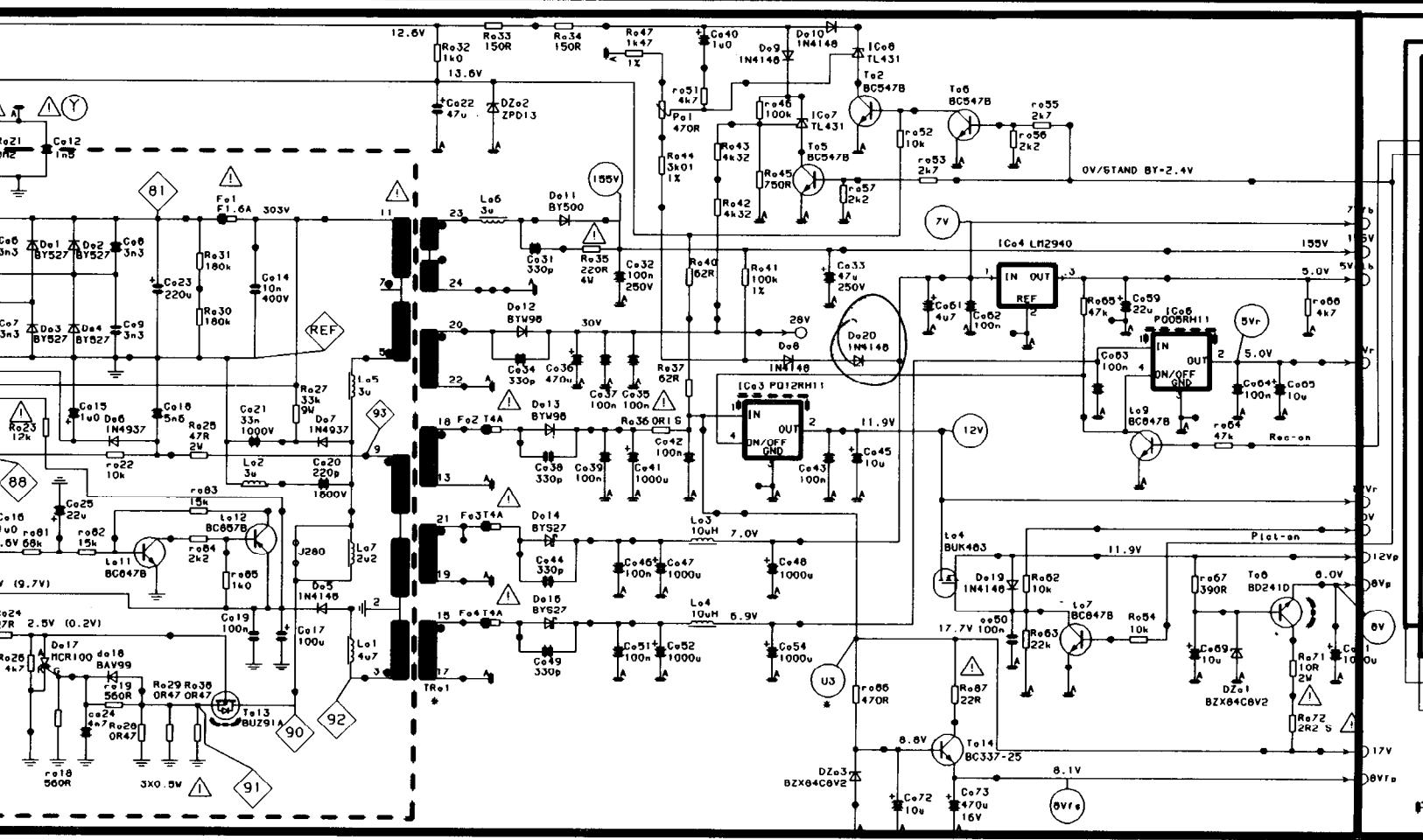
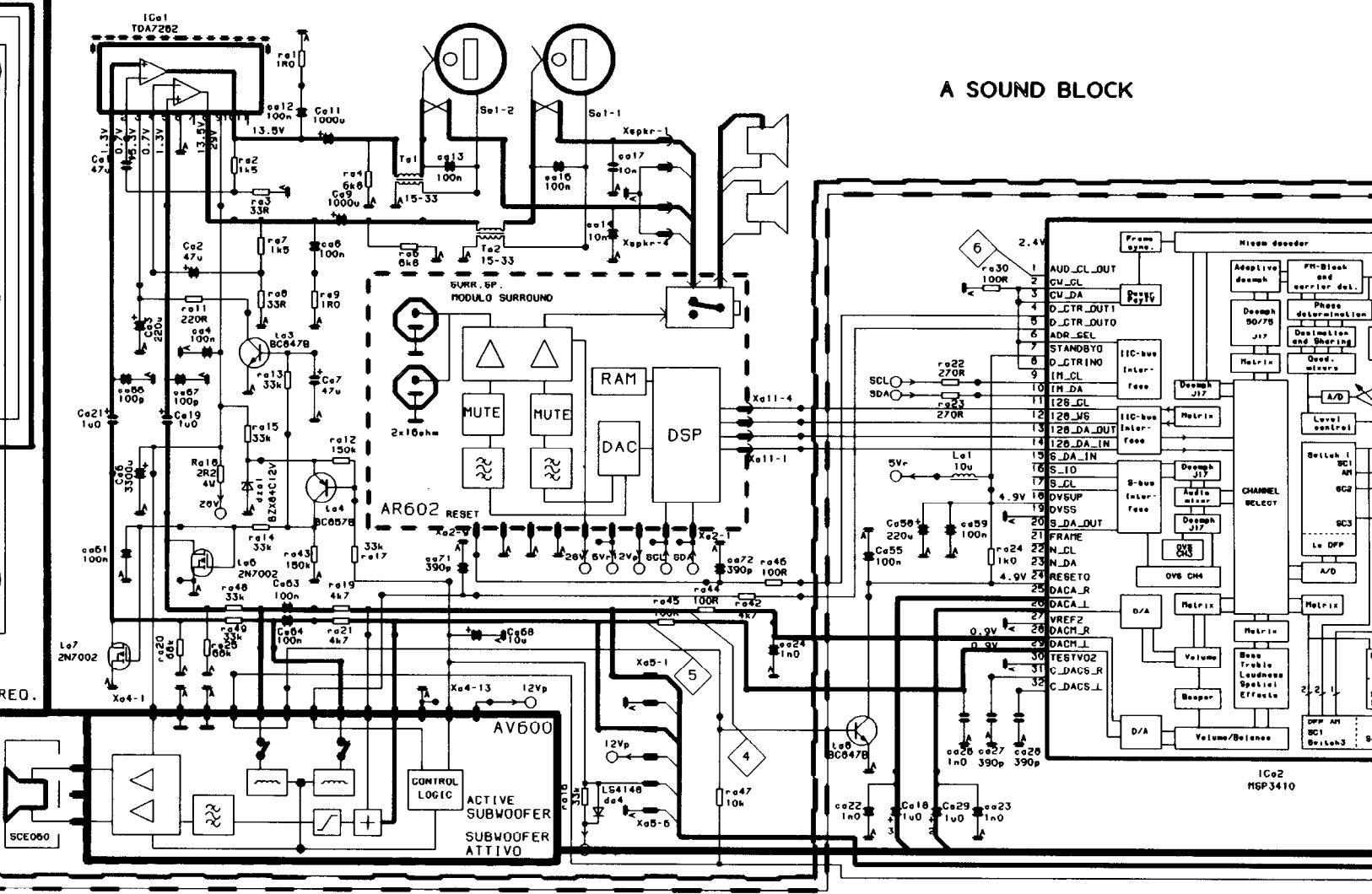


# NEC 14" CRT module

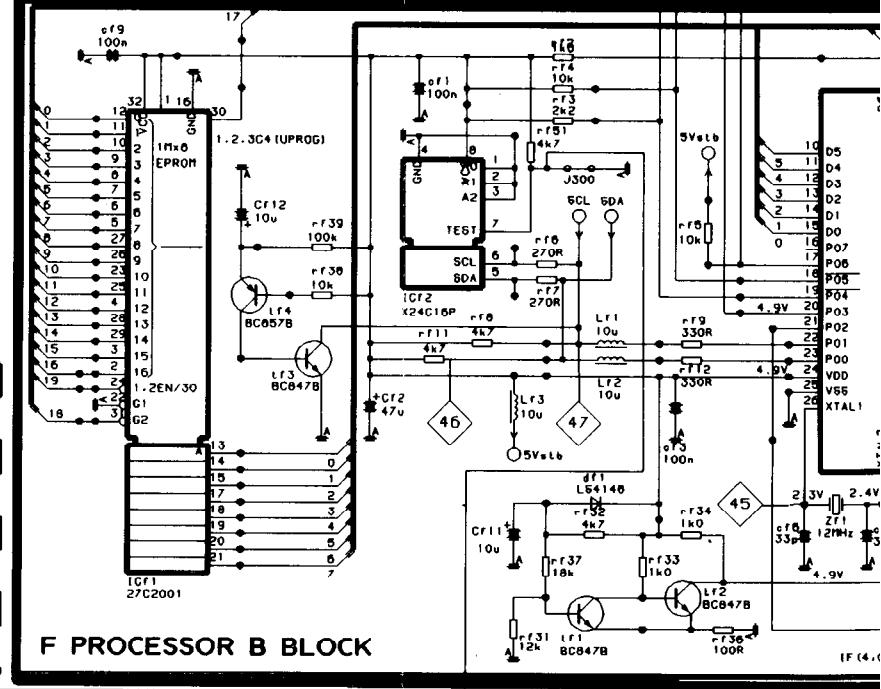
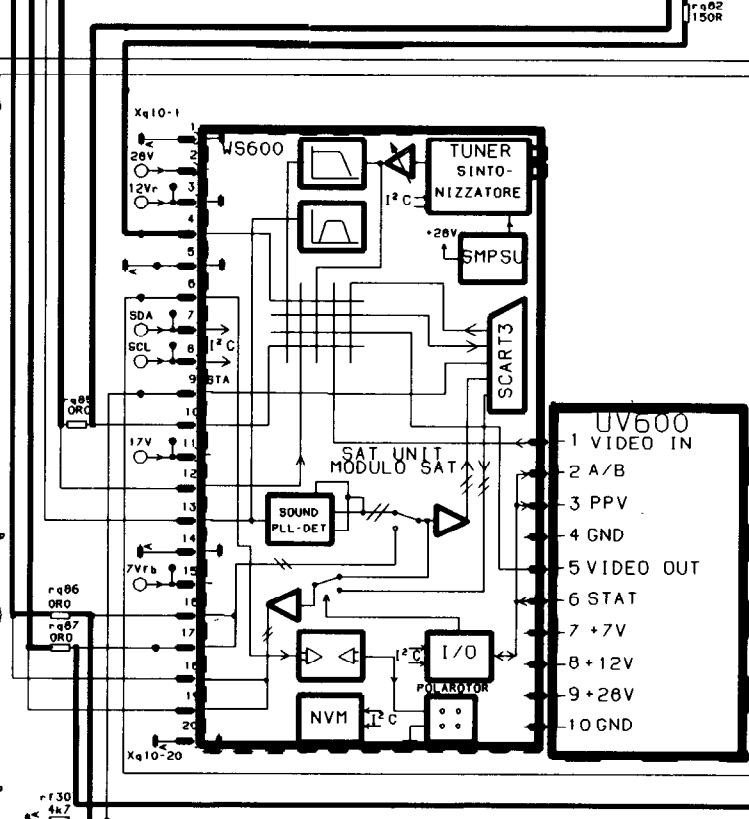
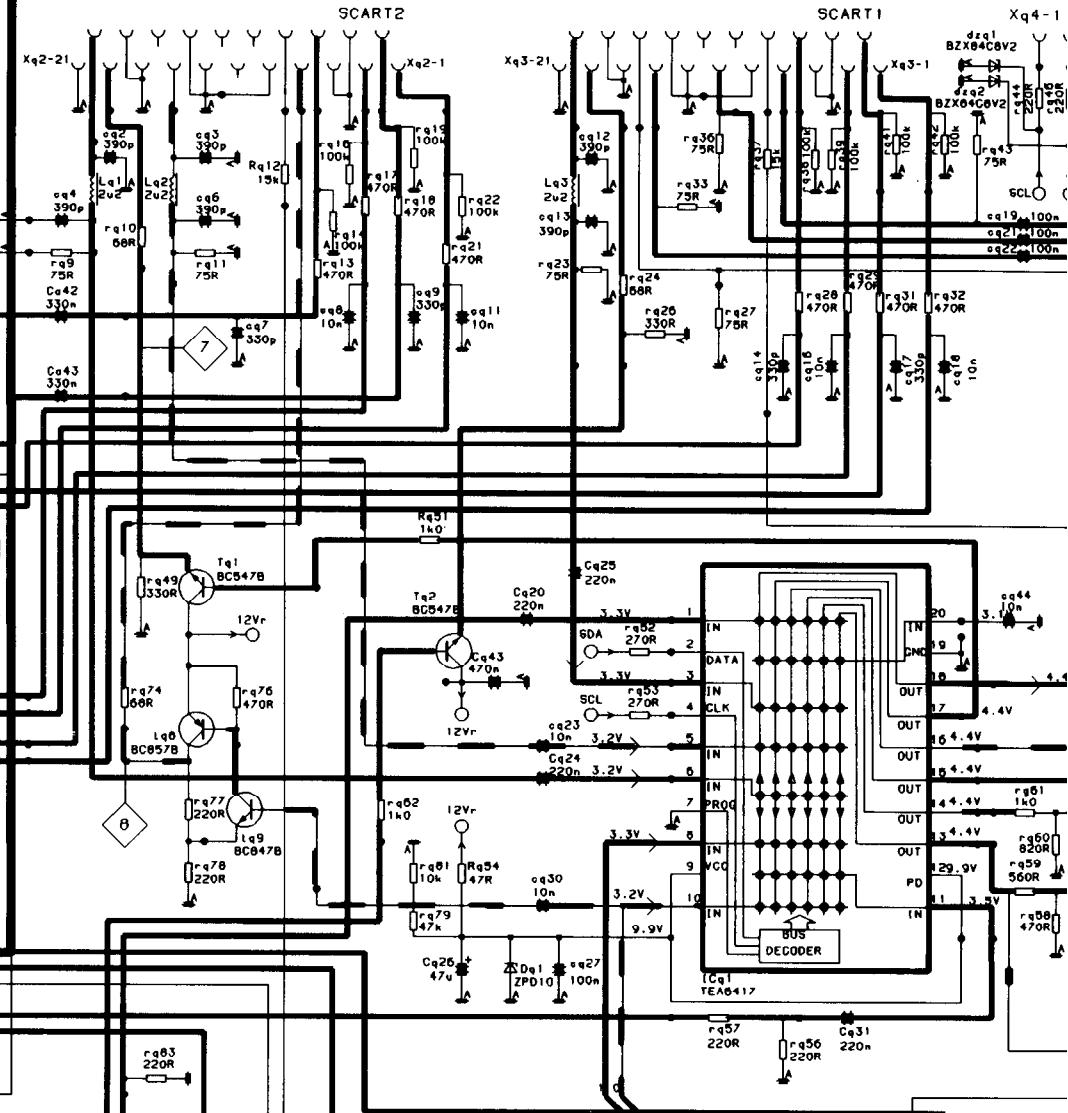
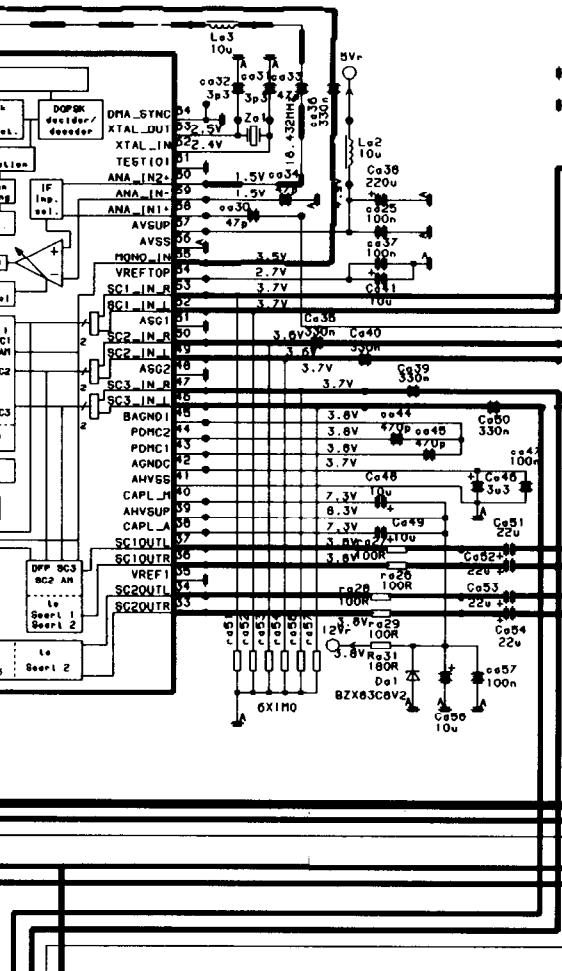




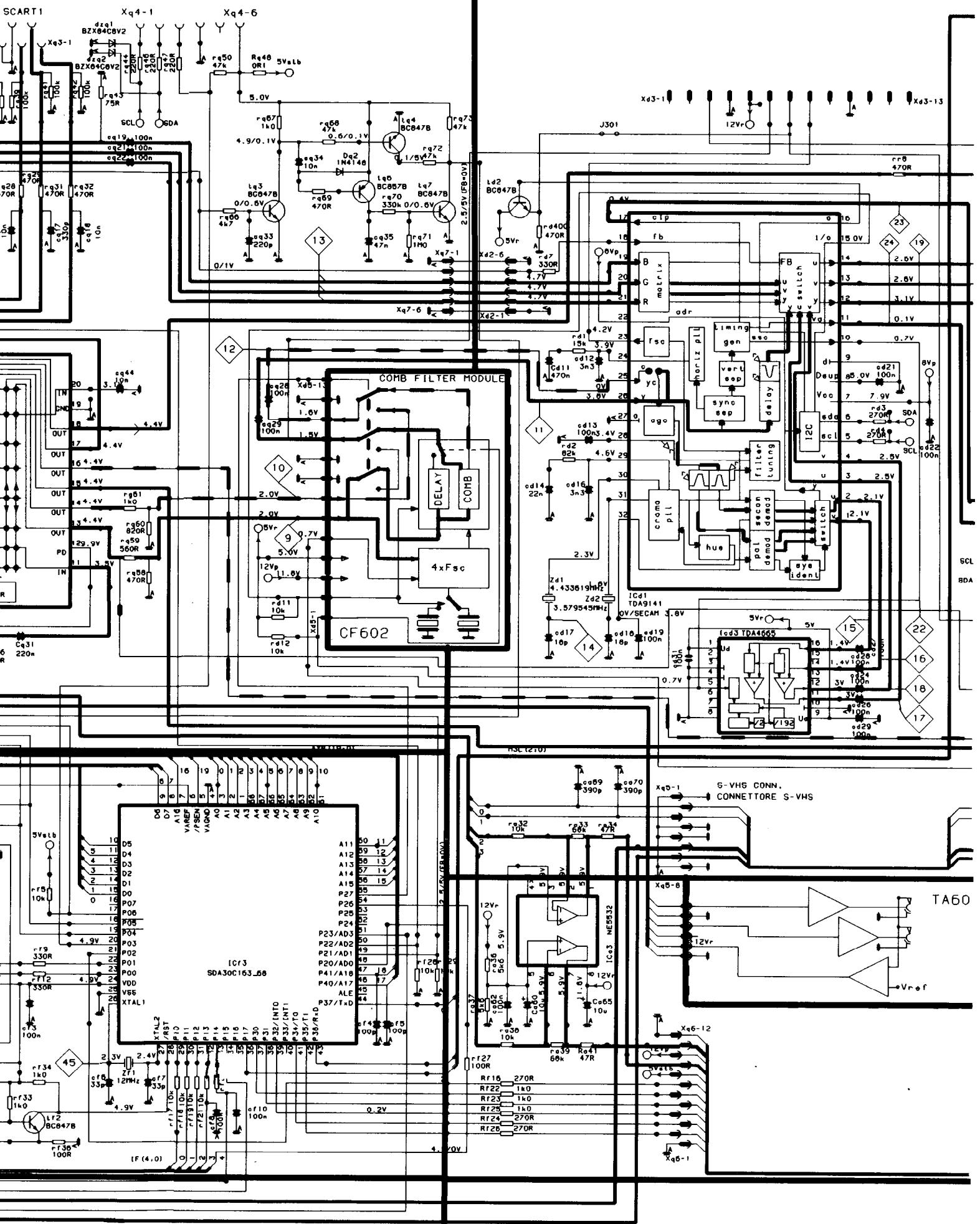




## MAIN BOARD

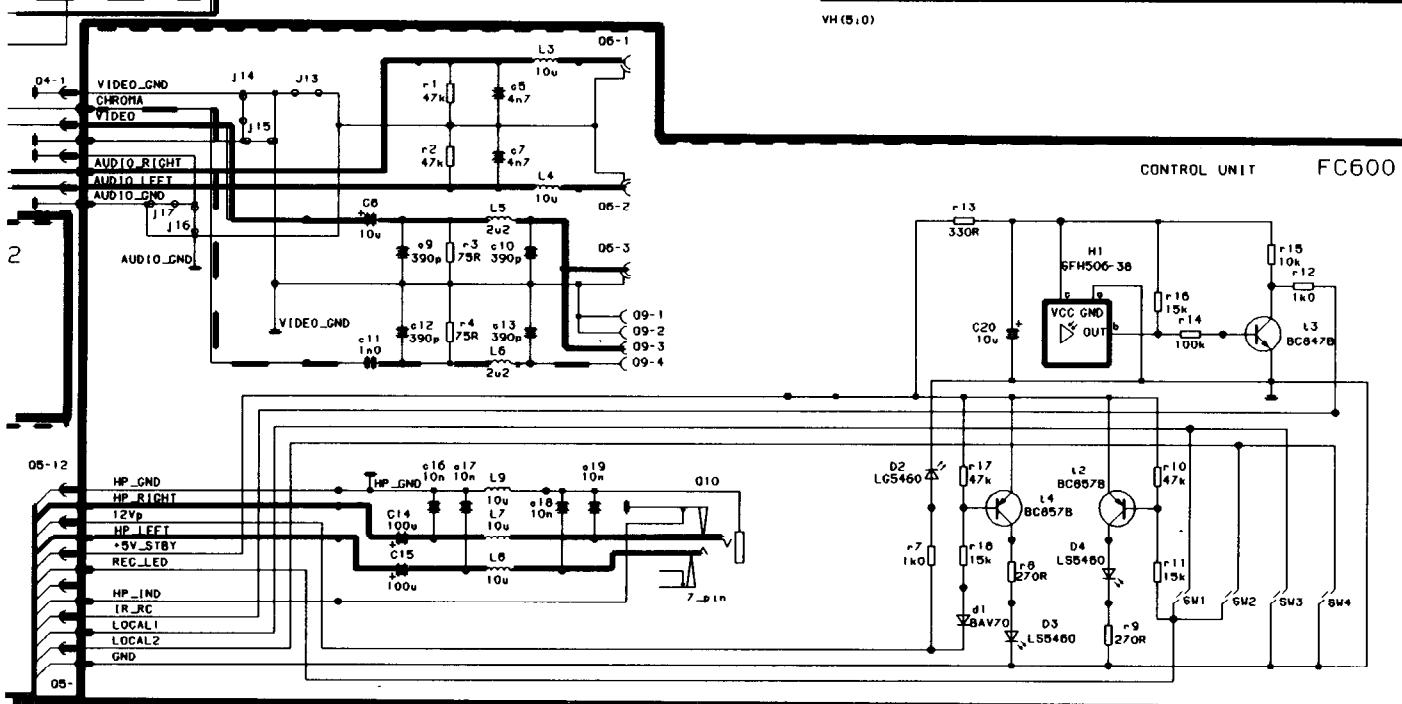
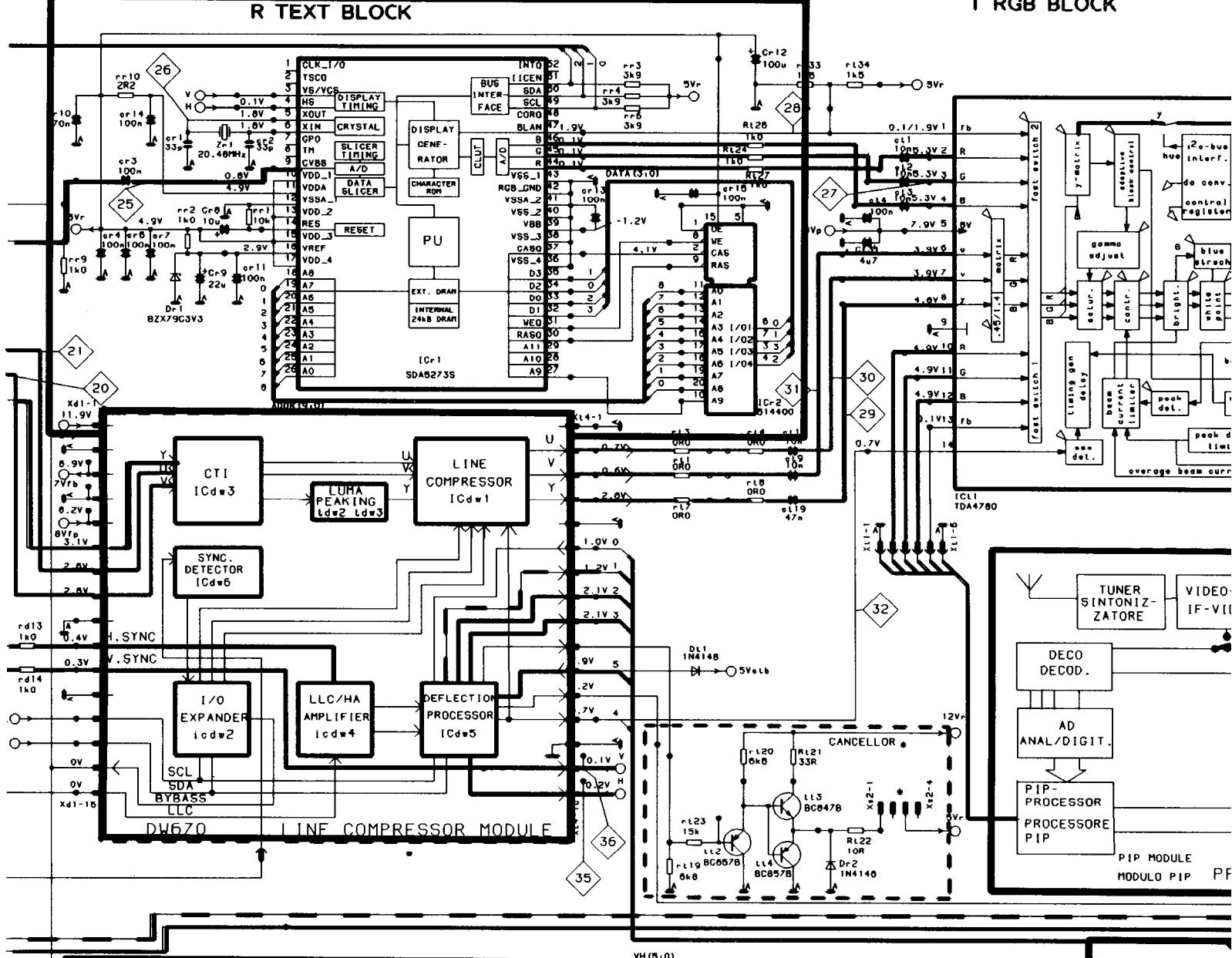


## D VIDEO BLOCK

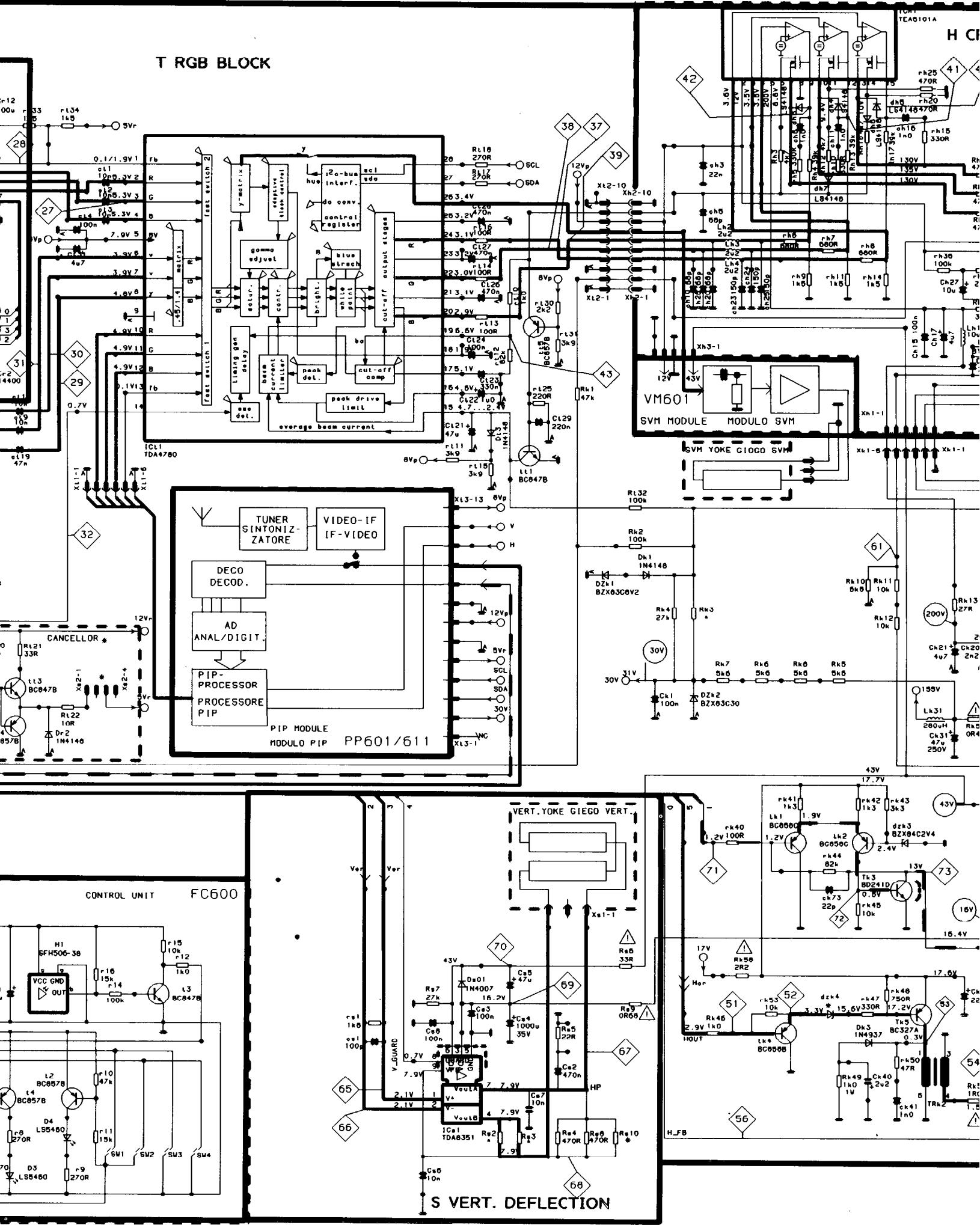


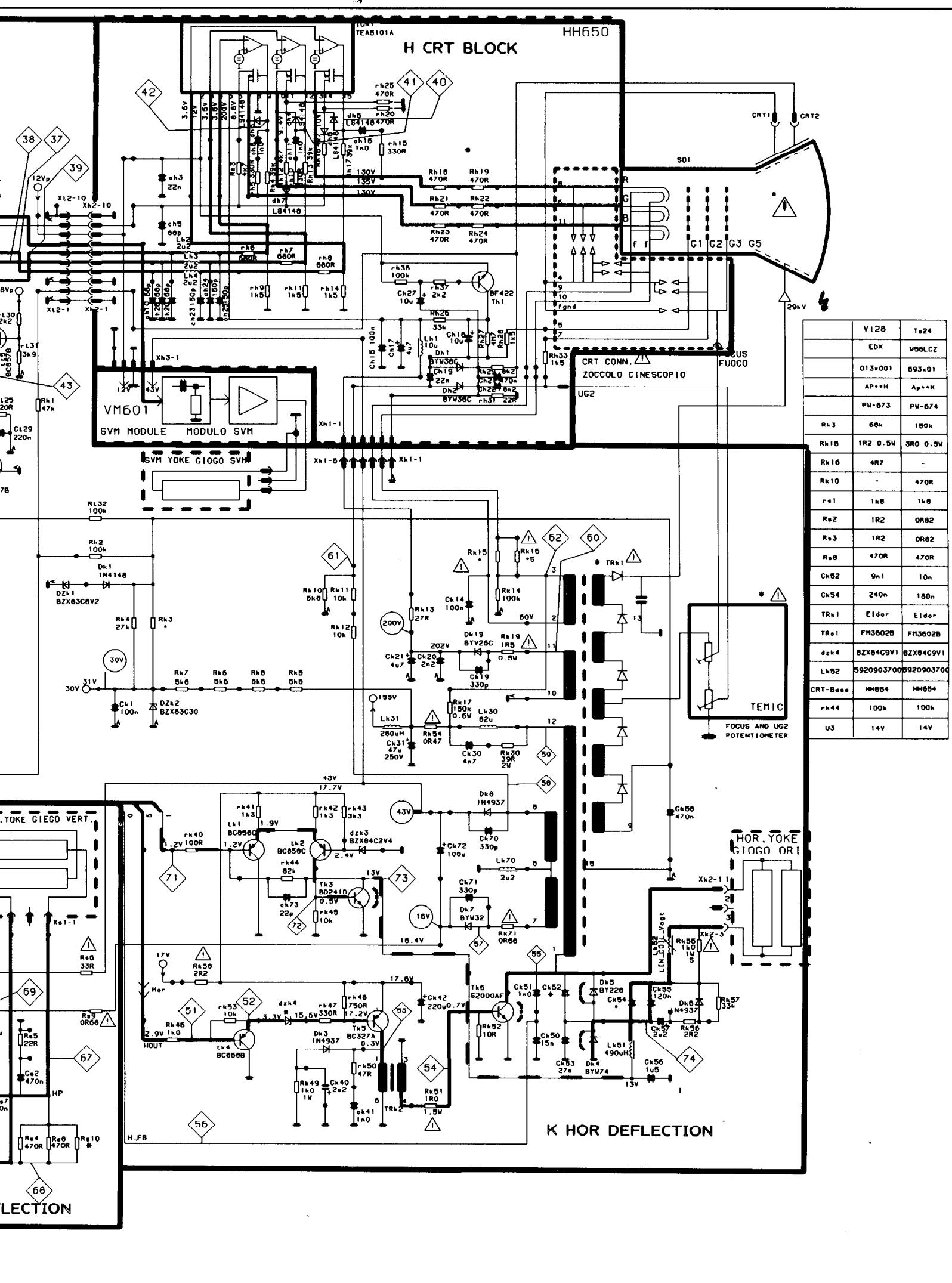
R TEXT BLOCK

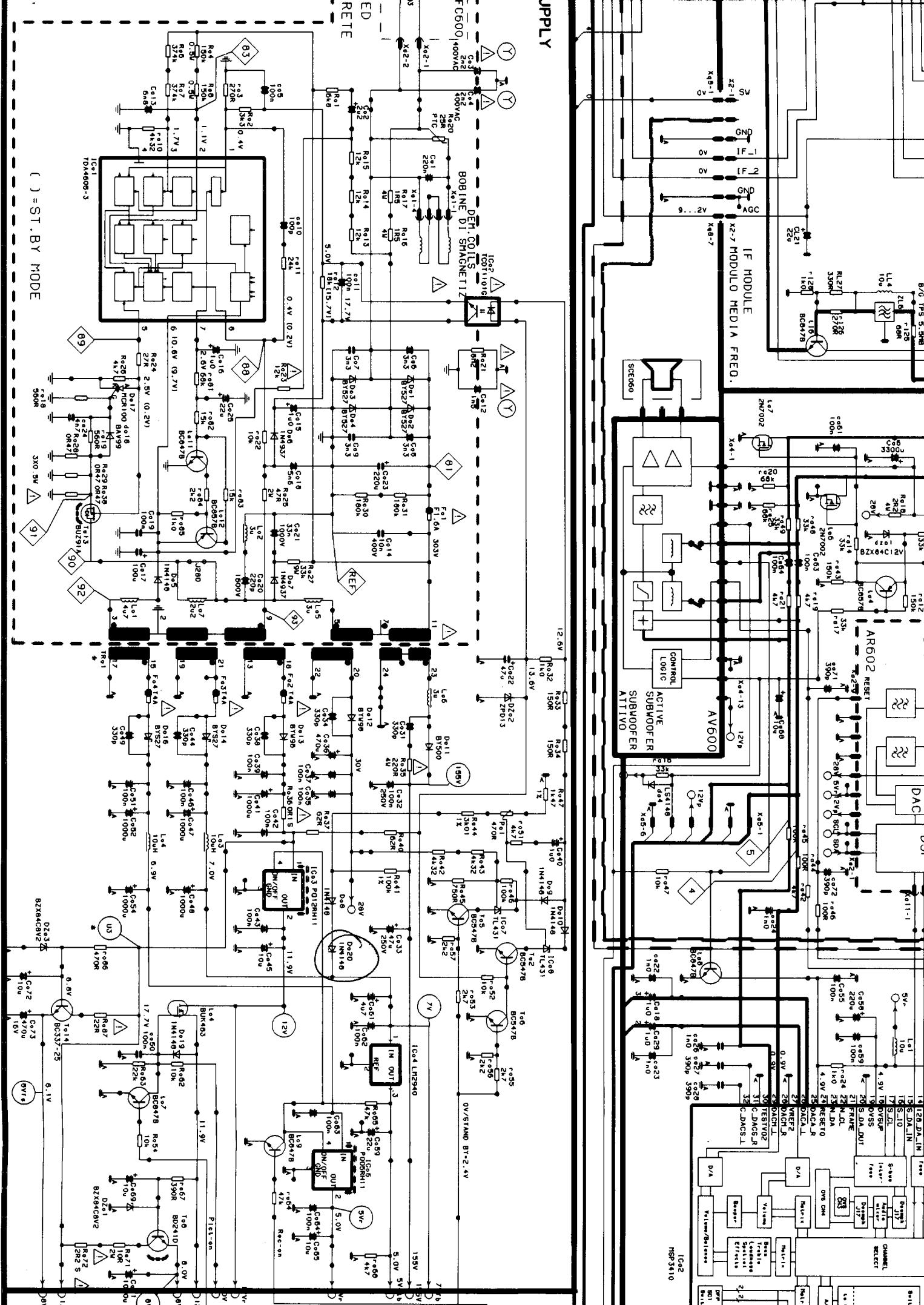
## T RGB BLOCK

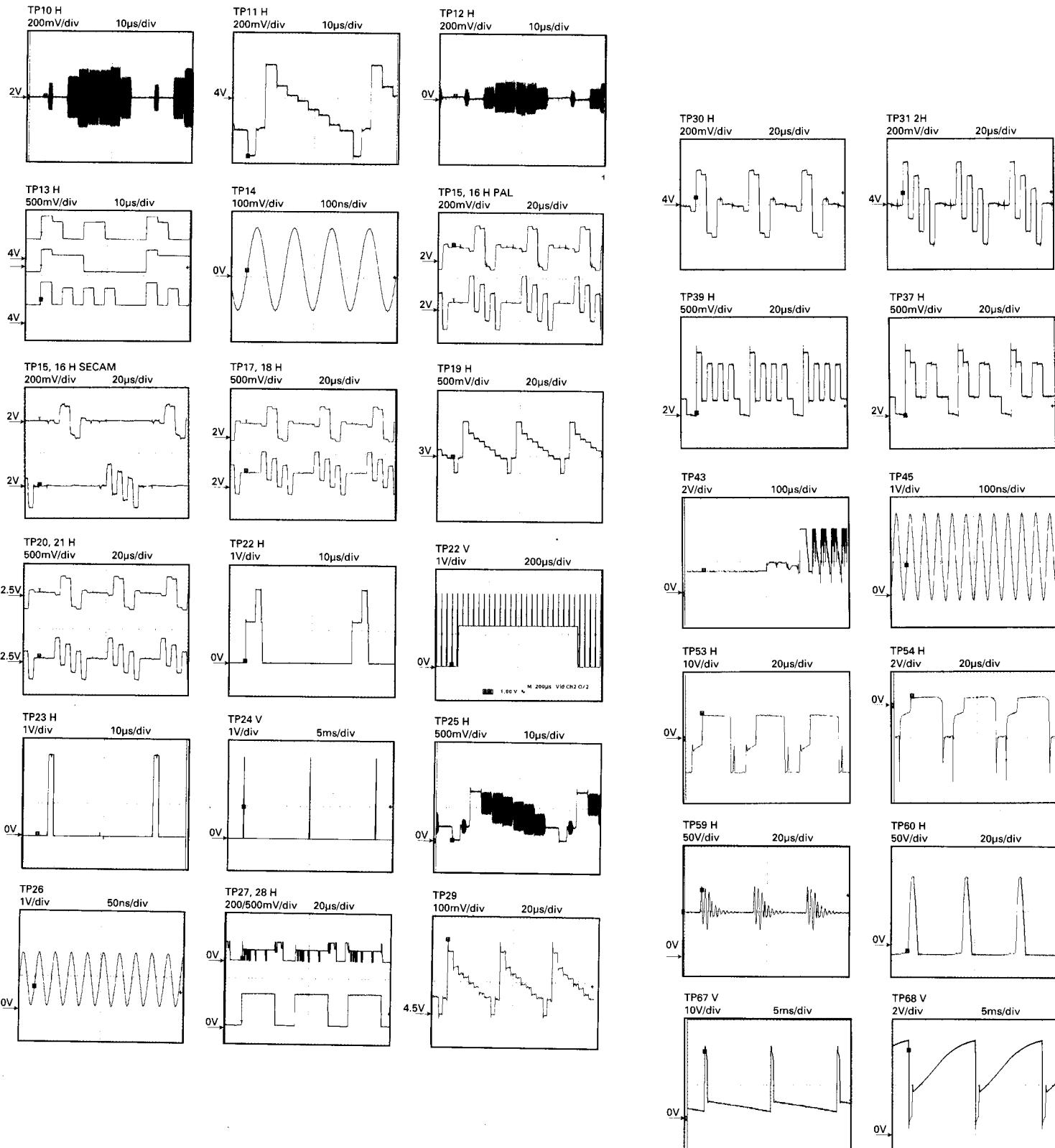


## T RGB BLOCK









## Picture IF and 1. sound IF signals

**Video signal (CVBS)**

**Chroma signal**

**2. sound IF signal**

**Audio signal (mono/sound 1)**

**Audio signal (R/sound 2)**

**Colour difference and RGB signals**

**Hor. deflection signal**

**Vert. deflection signal**

**E-W raster correction signal**

